Perceptions and Attributions of Third-Year Student Struggles in Clerkships: Do Students and Clerkship Directors Agree?

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Abstract

Purpose
To explore the congruence between students’ and clerkship directors’ perceptions and attributions of students’ struggles during the transition to clerkships.

Method
Focus groups and interviews were conducted with third- and fourth-year medical students and clerkship directors at 10 U.S. medical schools in 2005 and 2006. Schools were selected to represent diverse locations, sizes, and missions. Interviews and focus groups were recorded, transcribed, and analyzed thematically.

Results
Students’ struggles included understanding roles and responsibilities, adjusting to clinical cultures, performing clinical skills, learning the logistics of clinical settings, and encountering frequent changes in staff, settings, and content. Clerkship directors recognized students’ struggles with roles and responsibilities, performing clinical skills, and adapting to clinical cultures, but they also focused on students’ difficulties applying knowledge to clinical reasoning and engaging in self-directed learning.

Conclusions
Clerkship directors and students recognize many challenges associated with learning and performing in the clerkships. Students’ perspectives suggest that these challenges may be more complex than clerkship directors and clinical teachers realize and/or are capable of addressing. The areas in which clerkship directors’ and students’ perspectives are not congruent point to directions for future research that can guide curricula and teaching strategies.

I think that at the very beginning I found myself going through the metaphor, “what planet have I landed on?” Because every four weeks or every six weeks or every two weeks you’re changing and you have different people who have different expectations, you have a different role, you have a different set of diagnoses to be considered, a different physical, a different history, different forms, and different nurses. So at the beginning I was like “whoa, how do I get my feet under me again and again?” And after the first few rotations I started to pick up that flexibility and I had a broader knowledge of diagnoses and I had a better idea of how to integrate into a team and how to adapt. —Student

This is a huge transition for them and we try to prepare them in the preclinical years but it’s always inadequate. —Clerkship director

The transition from acquiring theoretical knowledge and conceptual understanding as a student to using and expanding this knowledge and understanding as a novice practitioner is a familiar challenge in professional education.1 In medical education, this transition occurs most notably when students move from the preclerkship to the clerkship curriculum. Several studies have documented the high levels of stress and anxiety among medical students at this point of transition.2–4

From theoretical perspectives, there are a variety of reasons for the difficulties students experience. Cognitive psychology considers the problem one of knowledge transfer or restructuring8 and a transition point on the trajectory of developing domain-specific expertise (typically in clinical reasoning).9 From this perspective, the difficulties are a fairly normal part of learning a professional practice. Educational philosophy characterizes the transition as a deeper tension between epistemologies of scientific or technical rationality and practical reasoning.7–9 Working from an epistemology of practical reasoning, theories of experiential learning suggest that pushing the boundaries of one’s capabilities and struggling with uncertainty is often uncomfortable, but that it stimulates inquiry and reflection essential to learning.10,11 Situated learning theory suggests that the clerkships are really the beginning of entry into the professional community of medicine.12 As peripheral participants in these professional communities, students may find the amount they have to learn overwhelming, and they may predictably wrestle with their identity as a member of the community. Theories of moral development and identity development suggest that students’ difficulties with the transition will vary according to their own stage of development.13,14

Medical education can draw on these various theoretical perspectives to develop a curriculum that best supports students’ learning of the core practices of medicine. When Flexner espoused a new model for medical education in which the first two years of medical school would introduce physicians-in-training to science, the intent was to enrich and better inform the practice of medicine. Over time, the burgeoning knowledge in biomedical sciences led to the explosion of scientific content in the first two years of medical school. Although a variety of clinically or practice-oriented topics have been added to the preclerkship curriculum since the 1980s as one way of making the transition to clinical education less abrupt and dramatic, there is considerable evidence that students still find the shift very challenging. Students’ difficulties reorganizing their knowledge...
base in ways that are more clinically oriented and accessible in practice are well known. Some additional elements that have been reported in other studies, both qualitative and quantitative, include adjustment to new environments, heavy workload and long work hours, applying clinical skills (e.g., conducting a more focused and practical interview and physical exam), feeling in the way, useless, or uncertain about their role, finding time to read or study and adapting to more independent or self-directed learning, and adapting to new teaching styles, expectations, and forms of assessment. Several studies have asked students at the end of their preclerkship training to report how prepared they feel for specific aspects of clinical practice, and these studies have found considerable shortcomings. Feeling inadequately prepared exacerbates students’ anxiety about entering clinical training.

Most of the studies exploring the challenges that students face in the transition to clinical training draw on student perspectives for insight. However, clinical teachers and clerkship directors provide another important perspective because they work with many students over time and, thus, are aware of the common problems or struggles encountered by students early on in the clerkships. Clerkship directors tend to see students struggling in a variety of areas when they begin their clinical training, and they attribute these struggles to inadequate preparation. Clinical teachers express concern about what students know and what they can do, but they fail to adjust their expectations for developmental and context factors that influence student performance.

The only study we identified that provides some insight into differences between students’ understanding and attribution of difficulties they face in the transition to clinical learning environments and clinical teachers’ perceptions of students’ difficulties focused on the potential benefits of early clinical experience. Dornan and Bundy report that clinical teachers felt students lacked life experience and needed time, augmented by early clinical experiences, to advance their intellectual and emotional development. Similarly, students were eager for real patient-care experiences and felt the transition was abrupt, like “being thrown in the deep end” to “sink or swim.”

Summarizing the current literature on student struggles with the transition from preclinical to clinical learning, a variety of reasons are suggested as to why the change is stressful for many students. Little is known about clinical teachers’ interpretations of student struggles and the extent to which teachers believe these struggles can be, or even need to be, addressed early on in the clerkships. The problem has been framed as a product of deficiencies in the preclerkship curriculum and as an adjustment that students inevitably encounter, neither of which provides very strong incentive for clinical teachers or clerkship directors to address it.

Our purpose, therefore, was to explore the relationship between students’ and clerkship directors’ perceptions of students’ struggles with the transition to clerkship. Given the potentially wide array of sources of the challenges that students face, we can begin to tease apart struggles that might be a reasonable or even a generative part of the learning process from those that seem more inhibiting and, therefore, most in need of attention.

Method

The data collected and analyzed for this study are a subset of a larger national study of clinical education in medicine conducted in 2005 and 2006. Ten U.S. medical schools are represented in the data, all of which have clerkships organized in specialty-specific block rotations. The schools include an array of geographic regions, public and private institutions, urban and rural locations, and community-based and research-intensive academic health care centers. The data include responses and comments from 16 interviews and eight focus groups with clerkship directors, and 11 focus groups (one school required two focus groups with students so that students from distant clerkship sites could be included in the study) with third- and fourth-year students. We requested participation from all core clerkship directors at each school, resulting in invitations to approximately 70 clerkship directors. We requested participation from 7 to 10 students for each focus group, resulting in invitations to approximately 110 students. Approval for research on human subjects was obtained from both the institution sponsoring the national study and from the university with which two authors (M.C. and D.I.) are affiliated. Each medical school in the study consented to participate, and each individual in the study provided written consent to participate.

The interview and focus-group questions that generated the data for this study are embedded in a broader set of questions relevant to clinical education. The protocol for the student focus groups included the following questions: What part of learning to be a doctor was most challenging when you started your first clerkship rotation? and What challenges have you faced in transitioning from classroom to clinical learning? Clerkship directors were asked similar questions: Describe the experiences students face as they transition from preclinical to clinical training, and What do students struggle most to learn at the beginning of the third year on your clerkship? All three authors conducted the interviews and focus groups and probed for more details and concrete examples when necessary.

All interviews and focus groups were recorded, transcribed, and entered into a qualitative software program, NVivo. Each transcript was initially coded for passages discussing student struggles at the beginning of their core clinical rotations by the first author (B.O.). From these passages, a list of themes was generated. The list of themes was aggregated through several iterations and ultimately distilled into 12 core areas that accounted for students’ struggles. These areas are consistent with many of the findings reported above. All passages were recoded by the first author and at least one of the other authors, using the 12 core areas of struggle. Discrepancies in the coding were discussed and reconciled. The final tally, based on whether the category of struggle was discussed in a particular transcript, is displayed in Table 1. The top five categories of struggle discussed by students and by clerkship are described in greater detail in the results section and are illustrated with representative quotes in Lists 1 and 2. An attribution was coded when clerkship directors or students identified or explained a specific source of or reason for the struggle. The attributions were clustered...
Table 1
Transition Struggles Derived from Focus Groups with Third- and Fourth-Year Medical Students and from Interviews and Focus Groups with Clerkship Directors at 10 U.S. Medical Schools, 2005 and 2006*

<table>
<thead>
<tr>
<th>Theme</th>
<th>No. (%) of transcripts mentioning the theme</th>
<th>Students (11 transcripts from 83 students)</th>
<th>Clerkship directors (25 transcripts from 65 directors)</th>
<th>Congruence†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roles, responsibility, expectations</td>
<td></td>
<td>10 (91)</td>
<td>14 (56)</td>
<td>9</td>
</tr>
<tr>
<td>Adjusting to the culture of clinical environments</td>
<td></td>
<td>8 (73)</td>
<td>17 (68)</td>
<td>2</td>
</tr>
<tr>
<td>Clinical skills (technical, interpersonal)</td>
<td></td>
<td>8 (73)</td>
<td>14 (56)</td>
<td>6</td>
</tr>
<tr>
<td>Logistics</td>
<td></td>
<td>7 (64)</td>
<td>4 (20)</td>
<td>11</td>
</tr>
<tr>
<td>Frequent change (rotations)</td>
<td></td>
<td>7 (64)</td>
<td>2 (8)</td>
<td>12</td>
</tr>
<tr>
<td>Clinical knowledge and reasoning (diagnosis and plan)</td>
<td></td>
<td>6 (55)</td>
<td>15 (60)</td>
<td>3</td>
</tr>
<tr>
<td>Methods of assessment and feedback</td>
<td></td>
<td>6 (55)</td>
<td>7 (28)</td>
<td>7</td>
</tr>
<tr>
<td>Professional identity (sense of self as a physician)</td>
<td></td>
<td>5 (45)</td>
<td>3 (12)</td>
<td>8</td>
</tr>
<tr>
<td>Self-perception, self-confidence</td>
<td></td>
<td>5 (45)</td>
<td>2 (8)</td>
<td>10</td>
</tr>
<tr>
<td>Self-directed and experiential learning, self-assessment</td>
<td></td>
<td>5 (45)</td>
<td>12 (48)</td>
<td>1</td>
</tr>
<tr>
<td>Involvement with patients (emotional intensity, boundaries)</td>
<td></td>
<td>4 (36)</td>
<td>7 (28)</td>
<td>4</td>
</tr>
<tr>
<td>Time management, prioritizing</td>
<td></td>
<td>4 (36)</td>
<td>5 (20)</td>
<td>5</td>
</tr>
</tbody>
</table>

* Counts for appearance at least once in a given transcript—a binary code was used to identify whether struggles were identified in each category within a particular transcript. Boldface type indicates the five topmost struggles identified, discussed in detail in the text.
† 1 = most congruent, 12 = least congruent between students and directors. Absolute difference between percentage of student and faculty transcripts that mention the struggle.

List 1
Representative Quotes Illustrating Students’ Struggles, as Identified by Students*

- **Roles, responsibilities, expectations**
  “Very early in the year I found it extremely difficult to understand my role and I think part of it was because it was never explicitly explained to me how much was expected, how much I could move those boundaries around depending on my level of comfort.”

- **Adjusting to the culture of patient care in clinical settings**
  “In Medicine they want it all, we’re not supposed to filter because we have to take care of all their problems. And then you come [to surgery] and it’s, ‘We’re a subspecialty so we’re not worried about those issues, we’re hoping they’re being controlled by the primary physician.’ And then as a student you have to figure out, ‘Well, it seems important to me and I kind of want to tell him about it,’ but then at the same time they’re like ‘Ahhhh, stick to just our own specialty, our own field.’ So that’s kind of been the challenge for me I think is narrowing things down after doing a very broad presentation.”

- **Clinical skills (technical, interpersonal, interpretive)**
  “I felt uncomfortable talking to the patient and trying to come up with methodical ways of asking questions and making sure I didn’t miss things, not just jumping around all over the place, asking some of the more sensitive questions. I felt uncomfortable moving the patients around to get a thorough physical exam, especially if they were hooked up to IVs and laying in bed. I didn’t want to ask them to sit up or roll over. I felt uncomfortable presenting to the attendings, worried about sounding stupid.”

- **Logistics**
  “The first week there were so many things that I was expected to know right off the bat that I just didn’t feel comfortable with yet and a big thing was just getting oriented to the system, learning how documentation goes, how to read the electronic medical record, what different abbreviations mean, just how things run on the ward. So just some background things like that were difficult to get used to.”

- **Frequent change**
  “You finally start to feel comfortable and you’re at the end of the eight weeks or getting there. You know the preceptor, you feel comfortable with him. You are starting to feel comfortable with the information and then you move on to something else and you start [back at] ground zero and you feel, for lack of a better word, stupid. That’s hard for me.”

*Derived from focus groups with third- and fourth-year medical students at 10 U.S. medical schools, 2005 and 2006.

Results
In total, 65 clerkship directors and 83 students contributed to the discussions analyzed in our study.

Perceptions of students’ struggles
To compare themes that surfaced in discussions with students and clerkship directors, we identified 12 categories of struggles or challenges faced by students early in their clinical rotations, as shown in Table 1.

Third- and fourth-year students mentioned several areas that they found very difficult early on in the clerkship year—between 3 and 10 categories of struggles were coded within each focus group. Themes about struggles and challenges came up most frequently in the following five categories: understanding roles, responsibilities, and others’ expectations in clinical settings; adjusting to the culture of patient care in various clinical environments; performing clinical skills; learning the logistics of how things work in various clinical settings; and encountering frequent changes in staff, setting, and content. Examples of students’ struggles in each category appear in List 1.
Differences between students’ and clerkship directors’ perceptions of student struggles. In contrast, areas recognized less frequently by clerkship directors compared with students were understanding roles, responsibilities, and expectations; managing logistical information; handling frequent changes in setting, discipline, and people; and, to a lesser extent, performing clinical skills.

Comparing the content discussed within many of the categories illuminates additional differences in perceptions of the problem by students and clerkship directors. In adjusting to the cultures of clinical settings, students wrestled with the different ways of representing patients and their problems in different specialties. Students found it difficult to define standards of quality care in different settings, where resources, time, insurance, and relationships between specialties factored into patient care. Clerkship directors generally failed to appreciate the dramatic differences in the cultures of patient care among different specialties. Instead, they tended to frame students’ difficulties as a failure to understand the demands of patient care in real time, in real settings where the patient, rather than the student, is the focus of attention. From the directors’ perspective, the challenge for students was mainly acclimatizing to particular clinical settings and focusing on the patients in those settings. From the students’ perspective, the challenge was not so much in focusing on patients but, rather, on understanding how best to

Among clerkship directors, themes about students’ struggles and challenges came up most frequently in the following five categories: adjusting to the culture of patient care in clinical settings; accessing, applying, or restructuring clinical knowledge to enable clinical reasoning and assessment; performing clinical skills; understanding roles, responsibilities, and expectations in clinical settings; and engaging in self-directed learning, experiential learning, and/or self-assessment. Most clerkship directors identified multiple areas of difficulty (between two and eight categories) among students at the beginning of the clerkships, though slightly fewer than students identified for themselves. Examples appear in List 2.

### Congruence of perceptions

Although there is overlap among the top five categories that students and clerkship directors identify as sources of difficulty at the beginning of clinical rotations, there are some notable differences in the relative significance of these challenges from the different perspectives. Figure 1 displays the frequency of student and clerkship director transcripts that mention each area of struggle as well as the difference between the two groups. Students and clerkship directors similarly recognized engaging in self-directed, experiential learning; adjusting to the cultures of clinical environments; and employing clinical knowledge and reasoning as elements of transition struggles. In contrast, areas recognized less frequently by clerkship directors compared with students were understanding roles, responsibilities, and expectations; managing logistical information; handling frequent changes in setting, discipline, and people; and, to a lesser extent, performing clinical skills.

### List 2

**Representative Quotes Illustrating Students’ Struggles, as Identified by Clerkship Directors**

- **Adjusting to the culture of patient care in clinical settings**
  “Learning how to prioritize, when you have limited amounts of time. In the outpatient setting, you don’t have hours upon hours. You can’t go back and interview the patient later about the things that you forgot. So how do you take a patient sitting in front of you, and figure out, ‘What am I going to do in the next 15 minutes?’ And ‘what can I do for them the next visit?’”

- **Accessing, applying or restructuring clinical knowledge for clinical reasoning**
  “The transition between what, in first and second years, is a lot of lower-level learning objectives, memorization and what not, to trying to apply that to clinical situations. They still seem to try very hard to find out what the finite body of knowledge that they need to know is as opposed to kind of understanding that they need to apply that in new situations.”

- **Clinical skills (technical, interpersonal, interpretive)**
  “When they get used to doing a physical exam and they’ll do a head-to-toe exam. If the patient comes in for a knee replacement, you’ll get their H&P and they haven’t examined the knee because they’re just used to doing it head-to-toe and they don’t do a very focused exam. So they kind of lose their focus. . . . And looking at their charts when they first come on, there’s a big difference in how they chart. . . . a lot of times there’s a whole lot of information that means nothing at all. . . . And sometimes there’s a scant amount of information that means a whole lot but they’ve still forgotten a big part of it.”

- **Roles, responsibilities, expectations**
  “I think students often struggle with what their role is on the team. Are they supposed to just keep quiet and listen or are they actually supposed to get involved? They’re often afraid that if they say too much that they will be perceived as being rude or obnoxious but if they say too little then they are being too shy and not assertive enough. So they’re kind of in limbo. So they often struggle with, ‘how do we incorporate them in a way that they feel is effective?’”

- **Engaging in self-directed learning, experiential learning, and/or self-assessment**
  “I do think the shift from what I term ‘bolus learning,’ you know, learn for the test next week and get to the next test—it’s very different from what they need to develop for their professional careers where it’s a lot more continuous learning, self directed learning, self reflection, recognizing one’s own gaps and filling those.”

*Derived from interviews and focus groups with clerkship directors at 10 U.S. medical schools, 2005 and 2006.*

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communicate appropriate information and contribute to patient care in a variety of clinical settings.

The area of understanding roles, responsibilities, and expectations is closely related to adjusting to clinical cultures. Students were regularly concerned about knowing what their role was on the team and what they were expected to do without being told. Several students described feeling lost and useless. Some clerkship directors were aware of this difficulty and were concerned about finding effective ways of integrating students into patient-care activities. Others saw these struggles as indicative of deficiencies in students’ motivation or sense of professional responsibility. From the students’ perspective, there was a clear need for some guidance or explicit statement of expectations.

A third area that both students and clerkship directors frequently highlighted as challenging was clinical skills. Clerkship directors tended to focus on the technical aspects of students’ clinical skills, such as the selection and sequencing of information to include in a case presentation, recall of how to do a neurological exam, or level of efficiency in taking a history or conducting a physical exam. For students, the challenges associated with clinical skills were only partially about technical aspects and recalling “how to do it.” A variety of other factors were associated with clinical skills, such as concern for the patients’ comfort and well-being, the legitimacy of students’ performance of procedures (particularly if redundant), uncertainty about whether to prioritize efficiency or thoroughness, and confidence in their ability to perform without appearing “stupid.”

**Attribution of students’ struggles**

Although clerkship directors were often sympathetic to the struggles learners faced as they shifted from preclerkship to clerkship learning environments, they tended to attribute the problem to the shift in the ways students are expected to learn in clinical settings. Clerkship directors tended to see the preclerkship curriculum as an extension of the kind of passive learning, teacher-directed and didactic instruction that students had encountered for most of their education. This type of learning serves students poorly when they enter clinical settings. One clerkship director explained,

> They’re basically passive learners all through K–12, all through college and even the first two years of medical school are basically passive learning, sitting in the lecture hall, someone lectures at them. When they have to then change tactics and go more to, “my patient has endocarditis, I need to read up on that.” Going and making that transition, I find is often difficult for them.

Not surprisingly, clerkship directors also tended to attribute students’ struggles to the shift from learning in student-centered environments to learning in patient-centered clinical environments. The fast pace and the presence of multiple levels of learners and clinical staff in these environments adds to the challenges of the transition. Clerkship directors were sensitive to differences among students, noting that certain types of students tended to struggle with certain things (e.g., shy or quiet students tended to have a harder time integrating into the team, students that needed structure and reliable schedules had a difficult time in acute care settings, and disorganized students had difficulty managing their responsibilities). Clerkship directors rarely identified the overall structure of the clerkship year or the clinical curriculum as a source of students’ struggles. For example, clerkship directors rarely pointed to differences in team dynamics, clinical teachers’ expectations, or even specialty cultures as contributing factors to students’ struggles. Many clerkship directors viewed students as overly concerned about assessment, when they should be more concerned about service and learning to provide quality patient care.

Students identified gaps or shortcomings in their preclerkship education as a primary source of their struggles, including knowledge that is decontextualized and not integrated with clinical knowledge used in practice, as well as deficient preparation in high-value practical skills such as documentation in real time. One student explained,

> They don’t teach you how to do documentation in the first two years. So when you hit a clinic or a hospital you’re completely at sea unless someone pities you and shows you how to write notes.

Students also readily identified inadequacies in the clinical learning environments, such as failure to make sure that important concepts, expectations, or tasks were explained to them and infrequent direct observation of and feedback on their performance. As one student commented,

> Going into third year my preceptor gave me no expectations, no rules, nothing except for, “here we go, follow me.” You don’t know what his expectations are. Then you wonder, as far as being assessed, how is that going to work out?

The structure of their clinical rotations and curriculum was also viewed as problematic. For example, a student explained that

> At the end of the rotation you’re starting to feel comfortable in that area and then you start from ground zero again in a whole different area. Like you go from surgery to pediatrics or something completely different.

Students found considerable differences in the styles and approaches of different teachers and invested much effort into adapting to these differences. Students were aware of negative influences of the assessment system on their behavior and performance, but they felt they had to attend to it despite the perceived ambiguity and subjectivity, because assessment would have significant implications for their residency options and future career.

Among both clerkship directors and students, there was a tendency to normalize the struggles, to see them as an inevitable transition problem. For example, when probed to think about interventions that might help students with the transition, one clerkship director responded,

> I think we could decide to let them do it [learn independently and apply knowledge to clinical situations] not well as a third year or change the curriculum and let them do it not well as a second year. . . . Eventually they’re going to struggle when they learn to apply it no matter where it is, you don’t have a transition point that’s going to be rough for them.

There was often a sense that students would eventually adjust and that things would fall into place over time. Some clerkship directors took a more proactive approach and tried to provide mentoring, offer more structured learning activities or reading guidelines, or even redesign
Discussion

Despite a tendency to see the transition struggles as a normal part of students’ learning process, a number of curricular changes and pedagogical strategies have attempted to alleviate the struggles that students face as they move from preclerkship to clerkship education. Most schools have clinically oriented courses such as Introduction to Clinical Medicine or Essentials of Patient Care that teach core clinical skills such as interviewing, physical exam, communication skills, medical ethics, and professional responsibility.29 Many schools have shifted at least a portion of their basic science curriculum to problem-based, small-group formats in an effort to engage students in more active learning and to facilitate the structuring of knowledge for clinical reasoning.30 More recently, several medical schools have started providing a transitional course or orientation to the clerkships to equip students with logistical information, explain expectations, and review basic clinical skills.24,31,32 Some schools have also added longitudinal mentoring and small groups to provide extra support for students before and/or during their first clinical year.33,34

Most of the institutions included in our study had several of these initiatives in place, yet students still struggled with the transition. Are these struggles an inevitable part of professional learning, or are there persistent problems that have not been properly addressed? Are these struggles generative, the kind that “make you uncomfortable” but from which “you learn the most,” or are they inhibiting and a cause for concern? Given the amount of time, effort, and cost involved in current initiatives that target the transition problem, careful consideration of the primary goals, design, and added value of these efforts is warranted. Ideally, such initiatives must target the most concerning or inhibiting struggles that learners face.

Our study, coupled with a handful of other studies on student outcomes early in the clerkship year, offers some insight into which struggles deserve serious curricular or pedagogical attention on the basis of discrepancies between the perspectives of students and those in charge of designing and delivering the clinical curriculum. First, the struggles students experience are complex and multifaceted, running the gamut from the logistics of how to find the team for rounds or how to order a test to more enduring tensions between personal values and the values rewarded in productivity-driven clinical settings. Clerkship directors and clinical teachers might focus on one or two of these areas, but they often lack the focused and extended time with a student to know the student’s trajectory and to appreciate the complexity of the challenges. Clinical teachers have an attenuated appreciation of the magnitude of the difficulties faced by the students and/or a sense that the challenges learners face are beyond the teachers’ capabilities or responsibility to address.35,36 Furthermore, because clerkship directors typically see students performing better and struggling less in rotations later in the year, there may be a diminished sense that intervention is required.

Second, learning in the clerkships is an active and experiential process. The success of this process depends in part on students’ capacity for reflective practice and accurate self-assessment,7,37 particularly because students’ interactions with patients are rarely observed directly by clinical teachers.38,39 Although clerkship directors suggested that many of the types of things that learners struggle with early on are fairly predictable, each student has somewhat different needs with respect to support and instruction. In the best relationships, students and teachers discuss the student’s learning needs and goals and work together to plan and achieve them. In our study, students conveyed uncertainty about what tasks they could or ought to perform, let alone how well and how independently. Several students explained that over time, they realized the importance of discussing their learning needs, goals, and abilities with faculty, but this was very difficult to do early on when they did not have a good sense of reasonable goals and aspects of patient care that would be most important to focus on at their level. These findings suggest that there is room for improvement in the communication between students and teachers early on in the clerkships, particularly in helping students develop standards and skills for self-assessment. There is currently little effort to meet students’ needs for training and guidance in the processes of experiential learning.1,7

Third, students often lack the big picture to understand how the preclerkship curriculum is connected to their clinical experiences. Clerkship directors who participate in the preclerkship curriculum tend to be involved in a small piece and/or may be somewhat surprised by what students do or do not know. They may not take advantage of opportunities to better connect the
clinical curriculum with students’ preclerkship learning and experiences. According to Lajoie,6 “the transition from student to expert professional can be accelerated when a trajectory for change is plotted and made visible to learners.” Her work on mapping trajectories of competence could help teachers identify key transition points where instruction is needed.6

Fourth, integration of relevant knowledge domains and skills occurs through opportunities to perform and improve on sets of slightly differentiated tasks—namely, through deliberate mixed practice with feedback.40 Clinical teachers in our study seemed to underestimate how rarely students have opportunities for such practice and/or to underestimate the importance of such opportunities for their learning. A study by Sanders et al42 found tremendous variation in the technical skills that students had opportunities to practice during their clinical training. Although students make remarkable gains in performance over the course of the third year, it is difficult for them to appreciate these gains because they have so little continuity in any given professional community.

Finally, clerkship directors think of the students’ transition struggles as a result of the preclerkship curriculum more than as a result of extremely complex and intense social and technological environments. In the clerkships, particularly when structured as departmentally-based block rotations, students face ambiguous expectations and receive little consistent coaching and feedback. Improving the quality of clinical settings as learning environments is no easy feat, but clerkship directors need to critically and creatively examine their current circumstances for opportunities to improve the experience for students, rather than gazing critically at the preclerkship experience as if it were the panacea for student struggles in the clerkships.

Implications

Medical educators are relatively unsophisticated at distinguishing between formative struggles that advance learning and adverse struggles that distract or impede learning. Correspondingly, there is little information available to identify strategies that are most effective in alleviating the adverse struggles. So, first and foremost, we need data that track students’ learning and performance in a variety of domains over time. From a handful of studies that have looked at students’ actual performance at the beginning of clerkships, we see declines in students’ ability to apply biomedical knowledge,40 modest decline in social history-taking and other interviewing skills,41 and stunted moral development or even moral regression.13,43 Prince and Boshuizen19 suggest that stress and changes in skills required to learn may account for some of the delays in students’ development. Moreover, if expertise development is in fact, “a slow and discontinuous process,”18 we need to better understand and identify the timing of these discontinuities for various learners so that appropriately challenging, unfamiliar, and nonroutine situations are available to push learners and stimulate reflective thought, and so that clinical teachers can guide and coach learners accordingly.7,44 In any case, more gradual transitions seem warranted. This might involve placing learners in clinical settings earlier and incorporating more experiential learning into the early curriculum.44

There also seems to be a need for faculty development related to supporting learners in transition. The literature on expertise suggests that advanced practitioners and experts have integrated and restructured their knowledge in ways that make it difficult for early learners to understand and follow.46,47 Similarly, the Dreyfus model of skill acquisition48,49 implies that experienced clinical teachers have developed perceptual insights, or intuition, that can make it difficult for them to relate to early learners’ struggles. Both theoretical models suggest that clinical teachers cannot rely solely on their own experiences to know what learners are struggling with and how best to help them. Instead, they need to develop expertise in diagnosing and understanding learners’ struggles as well as devising ways of addressing these struggles. Some of these struggles will be predictable and, thus, relatively easy for the experienced teacher to identify and address.50 Others may be more complex and require creative strategies. Another option is to build more connections between preclerkship teachers and curriculum and clerkship teachers and curriculum. Knowing what is expected, how learners are prepared, and what learners are or are not prepared to do—essentially, the context and overall picture of the curriculum—are all important pieces of information that many teachers in the preclerkship and clerkship years lack.

Finally, some areas that seem to be most detrimental to students’ learning and development have not been addressed by most educational interventions. For example, whereas students will, inevitably, need to adjust to the cultures of patient-care communities, as would any newcomer to a workplace, it is hard to imagine that the learning gains of doing this mentally, emotionally, and physically exhausting adjustment multiple times within the span of one year could ever exceed the learning losses. A few schools have developed longitudinal clinical experiences with the goal of providing greater continuity for clerkship students.31 This approach is promising because the transition struggle should occur once in the beginning of the year rather than repeatedly, with each new specialty block rotation. Similarly, problems with inadequate formative assessment and feedback in clinical education are well known.38 In addition, the assessment processes used in the preclerkship curriculum, and even many used in the clerkships (i.e., SHELF exams), are not designed to support, facilitate, and reinforce the processes of experiential learning.19 Interestingly, neither clerkship directors nor students focused on overarching context factors such as duty hours regulations or the productivity demands of clinical teachers as factors contributing to or exacerbating certain transition challenges such as adjusting to the pace of activity in clinical settings, feeling lost or marginalized, and adapting frequently to changes in teachers and team members.

Limitations

This study is exploratory and describes the nature of students’ struggles at the beginning of clerkships from the perspective of both students and clerkship directors. Although we believe that saturation was reached on the subject by the time data collection ended, it is possible that there are additional themes or perspectives that were not captured in our data analysis.

The study did not attempt to match up teachers and learners who had worked
together, though most clerkship directors were probably familiar with most of the students. The matched design would be a powerful way of capturing congruent or incongruent interpretations of students’ struggles within the context of a specific relationship or even a particular incident. In addition, the study does not attempt to separate different contextual factors such as specialty, preclerkship or clerkship curricular structure, or time of year that might have influenced the themes that came up within a particular institution or transcript. We did find, however, that the themes and codes were relatively well represented across institutions, particularly when coded at the level of incidence of discussion (i.e., was this theme mentioned at least once in a given transcript?) rather than frequency of discussion within a particular institution or transcript (i.e., how often was this theme discussed in a given transcript?). Future work could address this limitation by using the categories we have identified to conduct a large-scale survey of students, faculty, and clerkship directors at a various institutions. By systematically collecting information on a variety of factors such as institutional and curricular features, along with a standardized set of perceptions and attributions of student struggles, it would be possible to look for correlations among the variables. Although there was variability in the amount of actual clinical experience available to students, the use of standardized patients to practice clinical skills, the use of problem-based learning or case-based learning, and the use of competency-based assessments in preclerkship curricula among the schools included in our study, our data are not sufficient for fine-grained comparisons among schools or generalizations about the relationship between these elements and student struggles. In addition, our study did not compare students in longitudinally structured clerkships against students in block-structured clerkships, a comparison that could be a fruitful area for further research.

We did not include residents in our study, although they often play an equal, and guiding students during the clerkships. On the one hand, residents are often overwhelmed by their own work and responsibilities, resulting in frustration when a student slows them down or adds one more thing to the list of things to do.

**Conclusion**

The challenges students face when they enter clerkships are not simply the application of knowledge and skills; they are also the adjustment to a clinical culture, the assumption of new levels of responsibility, the shift to experiential and more self-directed learning processes, and the continual process of adapting to new people, places, content, and expectations. The stress associated with these early experiences may have a negative impact on students’ learning and development with respect to advancing clinical knowledge and reasoning, clinical skills, and professional development. On the other hand, the change can also be exciting and motivating in ways that might benefit learning and performance under the right circumstances, and it may be a natural part of the discomfort of moving to higher levels of performance and development. Clerkship directors play a key role in shaping students’ experiences in the clerkships, so it is crucial for them to understand the nature of the challenges students face and to create a supportive learning environment by providing appropriate structural, curricular, or pedagogical changes in undergraduate medical education.

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