# Affirming Professional Identities Through an Apprenticeship: Insights From a Four-Year Longitudinal Case Study

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## Abstract

### Purpose
A four-year course, entitled Physician Apprenticeship, was introduced at McGill University's Faculty of Medicine in 2005. The primary objective of the course is to assist students in their transition from laymen to physicians. The goal of this study was to understand the apprenticeship learning process, particularly its contribution to professional identity formation.

### Method
For data collection, the authors used a longitudinal case study design with mixed methods. They conducted the study over a four-year curricular cycle, from 2008–2009 to 2011–2012. The case consisted of three apprenticeship groups. Students (n = 24) and teachers (n = 3) represented two subgroups for data analysis.

### Results
Physician Apprenticeship activities promoted and sustained medical professionalization in the participants. Salient features of successful apprenticeship learning were access to authentic clinical experiences as well as the provision of a safe learning environment and guided critical reflection. The latter two ingredients appear to be mutually reinforcing and contributed to the creation of meaningful student–teacher relationships. Teachers exhibited several qualities that align with a parental role. Students became increasingly aware of having entered the kinship of physicians. Teachers experienced a renewal and validation of their commitment to the ideals of medicine.

### Conclusions
Findings strongly suggest that a longitudinal apprenticeship in an undergraduate medical program can contribute to the formation and reaffirmation of professional identity. The case study design permitted the authors to create a provisional conceptual model explicating important features of the apprenticeship learning process.


> A fraternal attitude is not easy to cultivate…. So animated, the student feels that he has joined a family whose honor is his honor, whose welfare is his own, and whose interests should be his first consideration.
>
> —Sir William Osler, *The Student Life and Other Essays*[1]

Traditionally, the education of doctors has emphasized the acquisition of knowledge and skills: "knowing" and "doing." Recently, educators have turned their attention to professional identity—the "being" of physicians. A recent report[2] on the future of medical education in the United States highlighted the importance of a formative process, one through which the assimilation of new identity, values, and commitments occurs. The inclusion of professionalism as a core competence has also catapulted physicians' behaviors and moral character to the forefront. However, it has been argued that competency-based approaches are insufficient in explaining and sustaining identity transformation.[3] In fact, it has been suggested that the drive for a standardized version of the physician as professional may dampen individualism, adversely affecting identity formation.[4] Educators would clearly benefit from continued inquiry into how medical identities are developed, enacted, and sustained.

Professionalization is profoundly influenced by mentorships and role modeling.[5,6] Mentorships are similar to apprenticeships, and both play a key role in work-based learning. The theory of "cognitive apprenticeship" has been used to describe work-based learning.[7] Its sociocultural characteristics are encapsulated in the notion of "communities of practice."[8] Mentorships and apprenticeships are adept at transmitting shared values and constructing meaning from socially and contextually defined knowledge.[9] Despite such theoretical insights, gaps remain; for example, the pedagogies of apprenticeships and craft knowledge (i.e., knowledge gained by experience that is used every day but which is rarely articulated in any conscious manner) remain largely opaque and tacit.[10] Moreover, although mentorships have impacts in contexts such as career planning and research,[11,12] there is little evidence for their contribution to identity formation.

It has been suggested that apprenticeship learning "is as old as medicine itself and second only to the transmission perspective in the breadth of its use in medical education; surprisingly, it may be the least understood."[13] The motives and performances of key participants and the interpersonal dynamics that undergird a positive apprenticeship experience are unclear.

We wrote this report to describe a four-year qualitative case study that we undertook to explore the impacts of a longitudinal apprenticeship in undergraduate medical education, particularly as they provided

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understanding of the apprenticeship learning process and professional identity formation. The case study approach, which is underused in medical education research, enables a rich description of participant experiences over time. This study complements an earlier cross-sectional study of teachers in that same apprenticeship.[14]

## Context

In 2005, the McGill University Faculty of Medicine revised its undergraduate program, with "physicianship" as a leitmotif.[15] The Physicianship program explicates a set of professional behaviors and obligations and invites reflection on the essence of the physician as healer.[16] Its flagship course is Physician Apprenticeship (PA). PA's goals are to

- assist students in their transition from laymen to physicians;
- guide them in becoming reflective and patient-centered; and
- provide a safe environment where they are encouraged to discuss issues arising out of their educational experiences.

In labeling the course, the term *apprenticeship* was favored over *mentorship*, given that teachers would transmit knowledge and skills in addition to providing personal guidance. (For purposes of this report, however, we use the two terms interchangeably.) There are 28 PA groups in each class, accommodating 170 students annually. PA groups consist of 6 students, a clinical teacher (called an Osler Fellow), and 2 senior medical students (coleaders). With the exception of student coleaders, who graduate halfway through the program, PA groups remain stable for the duration of the curriculum and meet approximately five times per year, with occasional one-on-one meetings between teacher and student. The teachers are selected on the basis of their teaching reputation, peer recommendations, and student nominations. Students are randomly assigned to PA groups with no attempt to match teacher and student according to age, gender, ethnicity, or career interests. Details of PA, including the structure of the meetings and the accompanying faculty development program, are provided elsewhere.[14]

To contextualize the research findings we present in this report, it is necessary to outline a few features of the curriculum. In the first 18 months, students are immersed in the basic sciences and have minimal patient contact, with the exception of their "first-year patient." They are expected to visit this patient, a person with a stable chronic illness, on a regular basis in the patient's home and on clinic visits. During the next 6 months, students are attached to clinical sites where they interact with patients, without direct responsibility for medical care. Later, a white coat ceremony, marking the transition to clerkships, occurs midway through second year.

## Method

### Design

Our study, the Physician Apprenticeship Case Study (PACS), was a longitudinal, mixed-methods investigation based in a constructivist paradigm and employing the instrumental case study design.[17,18] The case consisted of three PA groups evolving over their natural four-year curricular cycle. The number of groups was chosen for feasibility as well as concordance with case study design: Our rationale in using a case study was to produce a thick, rigorous description of PA experiences. Teachers and students emerged as subunits for data collection and analysis; the final analysis, however, focused on the whole case. Our goal was to provide a detailed and holistic accounting of the case, contextualized within the physicianship curriculum, in order to contribute to a theoretical and practical understanding of apprenticeship learning. The Class of 2012 (entered in 2008) was the focus of PACS. The McGill institutional review board approved this study.

### Sampling and participants

We used both purposive and random sampling. Aware of the commitment that participating in PACS would entail, we purposively recruited Osler Fellows who were expected to be generous with their time; also, the fellows we recruited were from different specialties, genders, and educational backgrounds. Because students had been randomly assigned to PA groups by the faculty, sampling of students was already random. We chose five groups for preliminary contact, aiming to recruit three complete groups. The first three Osler Fellows contacted agreed to participate. We then approached the students and coleaders assigned to the three PA groups in which those fellows were members. All accepted. The study participants consisted of 24 students (14 women and 10 men) and 3 Osler Fellows (2 men and 1 woman).

### Data collection

Data collection occurred from August 2008 to April 2012. Multiple methods were used: document reviews (e.g., standard course and faculty development workshop evaluations); semistructured interviews; focus groups; observation of PA group meetings (with field notes taken by research associates); and questionnaires (pen and paper, and online). We elicited guided, audio-recorded personal reflections from Osler Fellows during the first year.[19] (Students were reluctant to use that approach to offer their personal reflections.) All audio-recorded data were transcribed. An overview of data sources is presented in Table 1.

### Data analysis

We approached the initial data analysis from a cluster of sensitizing concepts: those that grounded the curricular innovation,[15] adult socialization,[20] situated learning,[8,9] transformative learning,[21] and transition theories.[22] Our analysis was iterative. Two of us (J.D.B., Y.S.) coded the data; one of us (M.E.M.) and the research associates coded a subset to help refine interpretations. A formal process ensued as data materialized, involving two of us as senior researchers (J.D.B. and Y.S.) having meetings with the research associates twice per year to review recent data and consider these in light of previously analyzed data. These conversations focused on emergent issues and recurring patterns, culminating in larger overarching categorizations.

Three deductive categories (transitioning, reflection, and environment), in line with PA objectives, steered preliminary analysis. Within these categories, we were sensitive to inductive interactions between the two subgroups (i.e., teachers and students). For example, when Osler Fellows reported they were attempting to be less hands-on, we explored student data to see if this was perceived by students. Similarly, when students described changes in attitudes, we sought evidence that these were perceived by the fellows. All three of us met at the completion of each study year for an

Table 1

**Summary of Main Data Sources for the Case Study Described in This Report, McGill University Faculty of Medicine, August 2008 to April 2012[a]**

| | Type of data (no.),[b] by study year | | | | |
|---|---|---|---|---|---|
| Source | Baseline data[c] | 2008–2009 | 2009–2010 | 2010–2011 | 2011–2012 |
| Students | Questionnaires, pen and paper (18) | Questionnaires, online (17) | Focus groups (6) | Semistructured interviews (5) | Focus groups (8) |
| Osler Fellows | Semistructured interviews (3) | • Solicited audio recordings (10)<br>• Semistructured interviews (3) | Semistructured interviews (3) | Semistructured interviews (3) | — |
| Physician Apprenticeship groups | — | Group observations (4) | Group observations (6) | — | — |

[a]A four-year course, entitled Physician Apprenticeship, was introduced at McGill University's medical school in 2005. The goal of the case study described in this report was to understand the apprenticeship learning process, particularly its contribution to professional identity formation. The authors used a longitudinal case study design with mixed methods for data collection. The study was conducted over a four-year curricular cycle, from 2008–2009 to 2011–2012. The case consisted of three apprenticeship groups. Students (n = 24) and teachers (n = 3) represented two subgroups for data analysis.

[b]A number within parentheses represents the number of respondents to questionnaires, the number of interviewees, the number of group observations, or the number of participants in a focus group.

[c]The baseline data were taken during the first four weeks of the Physician Apprenticeship course.

analytical and meta-reflective pause; it was informed by a set of questions designed for longitudinal analysis.[23] These pauses were valuable in prompting us to identify observations that appeared to be constant versus in flux, to modify methodology, and to interpret the significance of preliminary descriptive findings.

### Rigor

Methodological rigor was ensured using standard strategies. All three of us have extensive experience in medical education research and qualitative research. Multiple data sources ensured data triangulation. An audit trail and reflexive journal were maintained, mapping the developments of conceptualizations and linkages, which ensured that the reasoning was grounded in data and informed by sensitizing concepts. The Osler Fellows verified the salient research findings six months after study completion. The students had graduated and were unavailable.

## Results

We describe our findings below with representative quotations; additional quotations are provided in Table 2. To preserve anonymity, we use masculine pronouns in the quotations from all Osler Fellows. Five main themes emerged in our analysis, each conveying a unique aspect of an apprenticeship learning process: (1) divergent expectations, (2) a safe space, (3) witnesses to change, (4) meaningful relationships, and (5) critical reflection.

### Divergent expectations

Initially, student expectations were concordant with the PA course objectives. Students expected Osler Fellows to be "positive role models" and "a good representation"—that is, living exemplars of physicianship. They wanted to be initiated in the clinical world:

> I expect to be provided with time and guidance to reflect on what I am learning. I think observing a senior physician will help to teach me my expectations.

The latter phrase conveys the notion that the student's innate expectations may not carry full legitimacy and must be held in check until verified against that of the reference figure—a "senior" physician.

There was some discrepancy between the students' and the teachers' expectations. The students seemed to focus on "how to do." They yearned for opportunities to develop new abilities (e.g., how to establish relationships with patients) and expected Osler Fellows to provide "in-hospital, tangible experiences." The fellows anticipated that the course would emphasize personal transformation through guided reflection—in other words, a focus on "how to be."

By the beginning of the second year, students' dissatisfaction surfaced. They became frustrated with the paucity of clinical experiences. Some qualified their relationship with the first-year patient as "false," complaining that they (the students) were "only offering companionship." One commented that the requirement to follow a patient, who was relatively well, was a "dumb idea," adding, "I did enough volunteering during undergraduate." Students remarked on a disconnect between a key objective of PA—reflection on their transition from layman to physician—and the course's inadequate provision of what they considered to be "real" clinical experiences. Authenticity in clinical exposure was, for students, equated to acute illness in hospital settings.

By early clerkships, the students' preoccupations changed. They now seemed content, even overwhelmed, with the extent of clinical responsibilities. They appreciated opportunities provided by PA for personal support. By midclerkships, the expectations of students and Osler Fellows converged, and both expressed satisfaction with the course.

### A safe space

Students considered the PA course to be "a forum to express concerns." They felt able to divulge personal information, with "carte blanche to talk about anything." Many referred to PA as a space "safe" for open and nonjudgmental dialogue and appreciated the absence of formal assessments. The group meetings were described as "a conversation I have with my friends but with insight from somebody who has gone through

Table 2

**Representative Quotations Illustrating the Themes That Emerged From the Case Study Described in This Report, McGill University Faculty of Medicine, August 2008 to April 2012[a]**

| | Representative quotations | |
|---|---|---|
| **Theme** | **From students** | **From Osler Fellows** |
| Divergent expectations | • I expect to learn how to approach patients and establish a relationship.<br>• I expect to get habituated to hospital function. | • [I want] to watch them grow … to see them go from neophytes to developing physicians.<br>• To see how they're being shaped, how they're approaching things attitudinally … to direct the change that's happening so that [each is] more of an active participant than a passive recipient. |
| A safe space | • It's kind of letting me still be myself or the way that I would … it's kind of encouraging me to practice the way that I would like.<br>• It's more some kind of emotional support but it's not like an overly emotional group.… It's not an AA group;… if I know that I have a problem, I can call my Osler Fellow and he will help me. | • There are students who desperately need help and won't speak to me. Those are the ones that I am keeping an eagle eye out for. I'm making myself available for those students.<br>• You've got to create that safe environment where they can hear my secrets and I can hear their secrets. How do you do that? One way is to try to flatten the power difference. The other way is self-disclosure. They're going to be telling me about their worst gaffes; well, I'll tell them about my worst gaffes. |
| Witnesses to change | • Now when I speak, I definitely speak with more authority.… I act more confident … the way I view the world has changed as well. Like walking down the street, I notice that this guy has jaundice or this other gentleman has clubbing; I just have a completely different way of looking at people than I did before. Whereas previously I would have noticed the shirt or the haircut, I [now] may notice they have a rash.<br>• [The] professional identity that you become when you're in the hospital— you kind of never really turn it off. You're sort of representing a school, a hospital, a profession as a whole. I find more and more I'm sort of intertwined with my profession and you can't escape it.<br>• Having trained in medicine for four years has made me much more an existential type of person.… You try to retain compassion but you do kind of start developing more of a—not a wall, but like a kind of coping mechanism.… You can only go home so many times after seeing someone in the ER with Stage 4 breast cancer or dying little babies … before compartmentalizing … kind of making that line between clinically relevant caring and making sure that you provide that sort of empathy versus overempathizing/overfeeling. | • I saw this huge jump … it's almost like they grew older … they seem to have almost changed. You start to see people's natural style of relating to patients begin to evolve.<br>• [From] first year all the way through, you really see the growth and how they change and how they mature.<br>• One of the interesting things was to see them really kind of gelling into, as they went to the clinical rotations, more of a sense of being physicians.… They got launched into things that were probably not right, but they were able to now kind of name more openly and say, "This is not right; it may have been a good growth experience for me but it was not right." There can be a certain set of values. Then, I think one of the ways you measure that is you bump up against something that's against those values and you're able to say, "This was kind of against those values."<br>• It's my opinion that they are developing wonderfully as resourceful, effective, caring physicians.… The amazing thing for me was seeing how each of the individuals in the group came to discover what their calling is. Each of them started off with general aspirations to be a fantastic physician without actually reflecting on who they were and what their own personal strengths, weaknesses, and needs were. |
| Meaningful relationships | • I've actually confided in him [an Osler Fellow] on at least one occasion.… One time I had an issue in school with something that I was able to meet with him. We spoke, like, just one on one. He's always there if I need to ask anything and I think that, I've become increasingly comfortable. I think I'm fortunate to have bonded with him. | • I feel very parental … if they were really struggling through something it would get to me; I would feel it for them and I would want to try to help them because they're good kids, and it sounds so funny because I'm not that old.… If I had a group where I put myself in there and I got no love in return, I think that would be just as difficult as when it happens in a true parent–child relationship. |
| Critical reflection | • The thing that I reflected on the most is the doctor as a healer … we don't appreciate how much every little thing we do or every moment we spend with the patient affects the patient.… Every time you see a patient you should debrief in your head: How did my visit go? How was that interaction? What nonverbal cues did I get from the patient?<br>• This is one of the few places where you can pause and reflect on what this process is doing to you.… In the early stages it was "Okay, what is preparing for these exams doing to us?" And now it's "What is being a clinical clerk doing to us; am I turning into the doctor I want to be?" | • They [students] were able to demonstrate some reflection when asked to do so in an artificial surrounding of the first year of the course, but the main thing that I found was that their spontaneous self-reflections became more frequent over the years.<br>• [If] you create artificially contrived opportunities for self-reflection you're not going to get it. It's like me pointing a finger at you and saying, "I want to hear you pray now." How can you be spiritual on demand? The motivation to pray has to come from you and your response to your environment. I think it's the same thing with self-reflection. Opportunities for self-reflection occur as a result of surprises and negative events. |

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it." Invariably, the Osler Fellows were characterized as caring:

> He can never be my "friend," for some ethical reason, but almost. He is very nurturing, meaning that he really cares about our well-being.

The students viewed the Osler Fellows as an antidote to harsh hospital environments.

Osler Fellows conceived of the space as one with a potential for demonstrating caring as well as ensuring safety. Although the course manual did not mention any expectation to be on the lookout for students with difficulties, each Osler Fellow took on this responsibility.

### Witnesses to change

Students were aware they were changing. They recognized their burgeoning knowledge base and new skills. They made references to an evolving, albeit inchoate, identity:

> Whereas they [teachers] talk about transition from layperson to medical expert, I feel like I'm somewhere in between.

Professional and personal identities became enmeshed, to the point that they were difficult to disentangle.

There is a common belief that the enculturation of medical students includes a transformation from idealist to cynic.[24,25] Yet, in the face of the challenging realities of clinical encounters, PA students developed pragmatic coping strategies and did not appear to be wallowing in a jaded space. One student described a nuanced struggle with how to compartmentalize compassion; he commented on the "overwhelmingness" of medicine and the value of developing skills in "clinically relevant caring." Another contrasted negative events with negative emotions:

> There is a lot of death … a lot of negative things. I don't know if it's cynicism or just desensitization towards less trivial thinking. I don't think the way med school has changed me is negative.

Osler Fellows anticipated professional maturation to be inevitable. They clearly wanted to see it, share in it, shape it, support it, and shepherd it. They were not disappointed. Professional maturation is demonstrated in the following observation, made after the unexpected death of a patient:

> The students are becoming more comfortable at the bedside…. The first time we went to the bedside, students were nervous, a little jumpy; they looked like young kids who were trying something out for the first time…. It's interesting to see, over two or three years, their ability to reconcile their professional life with who they were … or are … as human beings.

The use of the past tense—"who they were"—acknowledges the possibility of transformation.

Concordant with student perspectives, Osler Fellows did not perceive a shift towards cynicism; instead, they sensed a reappraisal of priorities within clinical contexts.

### Meaningful relationships

Student–teacher bonds that developed were very strong, as illustrated by the following comment:

> I had a very personal relationship with him [an Osler Fellow]; he helped me out with a couple of things I was dealing with on a personal level.

Osler Fellows anticipated having to prepare students for the emotional consequences of practicing medicine. In describing an anxiety-provoking ethical discussion, one commented that he had to help students recognize that they weren't the only ones feeling that way and to give them potential strategies should the students face a similar situation. Equipping students with "tips of the trade" was a self-imposed responsibility.

The relationships of Osler Fellows toward their students often took on the qualities of in loco parentis. For example, recognizing that a student was physically unwell and that his parents were not in town, an Osler Fellow escorted him to the hospital. The fellow commented, "I felt like I was taking on a father kind of role." Although not required, the three Osler Fellows chose to hold PA meetings in their homes. The students were delighted; one described it as "a created family of spending time together and eating food." Several students commented on the power of witnessing firsthand how one can successfully juggle personal and professional responsibilities.

There were multiple indications of the intimate nature of the bond. One Osler Fellow described how he felt compelled to disclose something personal of himself in the context of PA. Another commented how he felt a sense of "Fellow-envy" in that his students had not come knocking on his door for personal or emotional support, a feature that he believed characterized other PA groups. The felt obligation to respond to students' needs was powerful.

We suspect that peer interactions and the peer-to-near-peer interactions (i.e., student with student coleaders) were important, but the study design does not allow us to comment on this.

### Critical reflection

**Students' evolving reflective abilities.** PA meetings allowed students to pause and get a "reality check" of their experiences. When asked a few weeks before graduation to propose a nickname for their PA group, one group of students suggested "the Thinkers," evoking Rodin's sculpture, an elegant physical representation of reflection. Such yearning for reflection became evident to Osler Fellows as time progressed. They noted that reflection had to be spontaneous; it could not be expected "on demand." Although some were of the opinion that reflection is tied to positive events, including a sense of pride in doctoring, it was considered more easily triggered by negative experiences. One Osler Fellow created an explicit framework for reflection: "I think you need to start in first year and continue right along." Later, he described the process as "inculcating a habit of mind."

**Osler Fellows' reflections.** As Osler Fellows witnessed the students' maturation, it triggered a vicarious rediscovery of their own medical education trajectories and their passion for medicine. They were often effusive in their enthusiasm, describing their experience with words having the prefix "re": reinforce, rediscover, reanchor, and reenergize. Their experience with PA rekindled the flame of why they had entered medicine. The following statement was typical:

> It's nice to have these reminders, these refreshers, this opportunity to sit back and go.… Oh, yeah, that's why we do this.

One mused:

> The students bring you back to the wonder and specialness of medicine, which can sometimes get forgotten in the grind of everyday work. It's almost seeing things through a kid's eyes.

## Discussion

In this study, we were interested in understanding how an apprenticeship—its theoretical foundation, stated objectives, conditions under which it is deployed, and the nature of the relationships that it forges—could facilitate the acquisition or consolidation of personal qualities necessary for physicianship. Albeit on a smaller scale, PACS is aligned with the institutional case study, carried out 50 years ago at Cornell University Medical College, that sought to clarify how a medical school's institutional practices influenced the assimilation of attitudes and values of "medical men."[26]

We found concordance between the students' and teachers' perspectives with respect to apprenticeship goals. However, the means of attaining desired end points were perceived differently. Early on, the students focused on the need for authentic patient contact and a desire for an orientation to patients, with a focus on how to relate. We were intrigued by this finding because one might expect medical students to be secure in their abilities to interact socially; after all, they are selected partly on the strength of their communication skills. However, it seems as if they perceived patienthood to be so different from a healthy state that generic interpersonal skills were deemed inadequate; further, they seemed to assume that their first-year patients (who were outpatients) were qualitatively different from hospitalized patients. On the spectrum of social interactions, clinical encounters are indeed unique. Pellegrino[27] has described them as "a peculiar constellation of urgency, intimacy, unavoidability, unpredictability, and extraordinary vulnerability within which trust must be given." It is thus understandable that neophytes might view themselves as being on a threshold of a setting that is dramatically different—awaiting permission to enter.

The apprenticeship environment was important to students and teachers alike. Students used the term "safe," echoing the course objectives. The Osler Fellows had a slightly different perspective. They desired a pedagogic space that would allow them to demonstrate that they cared for students as individuals. Their descriptions were action oriented; they wanted to keep their students safe and to protect them. Although the adjective *safe* is applied repeatedly in descriptions of mentorships, there is very little in the literature that delineates its ideal characteristics. Wear and colleagues[28] have suggested that the phenomenon is linked to an invitation to speak out—that is, that students need to be provided opportunities to challenge norms or received truths without fear of reprisal. By doing so, the hope is that students will develop courage, resilience, and a sense of fearlessness.

The significance of self-reflection was a constant theme, and it appeared in the narratives of students and teachers across all four years. Students appreciated its importance more frequently during their clerkships. Osler Fellows underlined its importance throughout and, in their individualized fashion, attempted to promote reflection from the "get-go." Reflection and professionalization were often inextricably linked, the latter providing a stimulus for the former. Students pondered their emerging new identities, while Osler Fellows' reflections led them to relive their medical enculturation. Although the outcomes of reflection differed, its strategic importance was recognized by all participants.

The relationships that developed were intense. Osler Fellows took it upon themselves to prepare students for adversity, a phenomenon described in the literature[29,30] as teachers providing "survival" information. The Osler Fellows frequently used terms of endearment when referring to their students, and invited them into their homes. Interestingly, student anecdotes from other PA groups confirmed that the majority of Osler Fellows did the same. The few groups in which this did not occur resulted in students feeling deprived. Osler Fellows assisted students in their acclimatization to the clinical world and expressed pride in their accomplishments. They were vigilant in helping those facing personal difficulties. One act in particular, accompanying a student to the emergency room, was supererogatory. All of these qualities—protecting, guiding, and nurturing—resonate with parenting. At the same time, there was little indication that Osler Fellows were perceived as disciplinarians and authoritarian or that they considered themselves imbued with powers commonly attributed to authority figures such as parents. Further, parental metaphors were essentially absent from the students' discourses.

We are not suggesting that medical students should be considered children. It is important to contrast the socialization that occurs in a child, when guided by a parent, with that occurring in an adolescent or adult, when guided by another adult who assumes an in loco parentis role. The concept of adult socialization is helpful in this regard.[20] Contrary to childhood development, where the emphasis is on inculcating values, in adulthood socialization the focus is on negotiating between opposing value systems and on developing strategies to mediate value conflicts. The Osler Fellow who commented that he observed the "bumping up" of one set of values against another (see Table 2, in the "Witnesses to change" row) reflects this contrasting emphasis. Furthermore, in adult socialization there is a growing concern with realism as opposed to idealism. Although the students were aware of changes in their emotional stances, we saw no evidence of a dispirited pessimism. Consistent with adult socialization theory, our interpretation is that they acquired goal-directed realism.

We believe that the student–teacher relationship that unfolded in PA is more intense than might be evoked by the term "mentoring relationship." The metaphor of family or kinship may be appropriate. This perception is supported by a poignant comment made by an Osler Fellow in debriefing; he described his reluctance to take part in PA a second time because it would be akin to having "a second family" and this might besmirch the honor of the first. The notion of kinship may represent an underestimated feature of "intellectual apprenticeships"—apprenticeships that aim to "develop master practitioners in disciplines and practices characterized by great complexity, multiple procedures and dynamic environments."[31] PA contributed to the professionalization of all participants. It supported and validated the students' professional maturation as they progressively adopted the mantle of the physician, and it prompted a reaffirmation of physicianship values in Osler Fellows.

The introduction of PA at McGill University has been very successful. This is supported by the fact that the

school has encountered no difficulties in recruiting approximately 30 Osler Fellows annually over the past eight years. Furthermore, alumni admire the aims of PA; this has translated into enthusiastic donor support. The concept of the physician as professional and healer has become integrated in the institution's cultural ethos. The experience of teachers in other "doctoring" programs' supports the notion that broad-based culture change is a necessary ingredient for the cultivation of patient-centeredness.[32] Although a course such as PA is resource intensive, its benefits can be far-reaching.

We believe that PACS is the first study of medical apprenticeships carried out over the entire duration of an undergraduate program. The prolonged period of observations, and the nature of the case study design—resulting in nuanced, detailed, and thick descriptions—are notable and unique features of this study. A recently published study on continuous mentorship, exploring the impact of a five-year-long program, relied on semistructured interviews conducted over several months.[33]

### Implications

Professional identity formation is critically important. Although there is consensus that mentorships are influential, there is an indisputable need for a greater understanding of their theoretical foundations. We believe that PACS has provided insights that allow us to begin to create a helpful conceptual model, enabled by the case study methodology, that may be useful. Qualitative approaches, such as case studies, are particularly useful for medical education research, given their ability to produce and synthesize complex data from multiple contexts.[34]

Apprenticeship learning seems to afford opportunities for forging new identities. Aspects of the process that emerged as most salient are the provision of safe and caring learning environments together with dedicated, explicit and guided strategies for critical reflection. These two ingredients are mutually reinforcing. They are the prime contributors for the creation of meaningful student–teacher relationships that, from the perspective of teachers, may be aligned with parenting roles. These relationships, unfolding and developing in clinical contexts, buttress and nurture the progressive entry of novices into the kinship of medical professionals. They also enable profound reaffirmation of professional identities among teachers. This provisional model can serve as a conceptual guide for future research and can be tested and refined in other circumstances and contexts.

### Study limitations

The duration of PACS could be construed as a liability, as it would be indefensible to attribute the entirety of identity transformations over four years exclusively to the PA course. Although conjectural, it is likely that one's construction of self is in constant flux. Changes to self-identity can be related to simply getting on with life. It is important to underline that students face a remarkable array of challenges during medical school. Although we tried to tease out impacts perceived to be directly related to PA versus other curricular or extracurricular events, this was not always possible.

We do not know how often the groups we studied exceeded the minimal requirements (five meetings per year) or how often the teachers met with their students one-on-one. Anecdotal evidence suggests that the majority of groups meet the minimal requirements, but only a minority have one-on-one meetings.

Finally, we acknowledge that the three Osler Fellows whom we studied may not be representative of all the Osler Fellows involved in other PA groups, and that the three groups that we studied may not be typical ones. However, these are not really limitations, because we were not aiming for "representativeness" in any aspect of our study. The case study design does not allow us to generalize to other PA groups. We used our data to understand the apprenticeship process and to ground a conceptual model. This model can then be tested and refined in other circumstances or locales. We believe that, given our rigorous research process and resulting thick description, the readers of *Academic Medicine* will appreciate that our findings may be transferable to their own particular experiences.

## Conclusions

The process of identity formation is generally conceptualized as being situated in social relationships.[35,36] Our findings are congruent with this concept; further, they allow us to recast the nature of the student–teacher relationship, using the metaphor of the family or kinship. The Greek myth of Chiron may be an appropriate symbol. Chiron was a centaur, considered wise and civilized; he was a mentor to many Greek heroes, including Asklepios, the Greek god of healing. The Osler Fellows whom we studied can be considered to have attributes of a modern-day Chiron, as mentors *and* foster parents. They helped to initiate students into a kinship of healers. Although mentorships are often conceived of as an educational technique, we would do well to place greater emphasis on mentorships' relationship aspects. Apprenticeship learning can catalyze the creation of a professional family. This notion was captured by the ever-prescient Sir William Osler in the epigraph presented at the beginning of this report. Clinical teachers should be mindful of this and be encouraged to create a space for such relationships to take root and be sustained.

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