

RESEARCH ARTICLE

Crossing Bodily, Social, and Intimate Boundaries: How Class, Ethnic, and Gender Differences Are Reproduced in Medical Training in Mexico

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ABSTRACT Bodies are useful instruments for understanding the reproduction of inequalities. In this article, we investigate why and how bodily, social, intimate, and physical boundaries are crossed and what this can tell us about individual and social bodies. We unpack how seeing and being seen, touching and being touched, or feeling and being felt are conditioned in very particular ways by the broader political economy. Participants in this ethnographic research in Mexico used the term *manitas* to describe how they trained their senses (hands, ears, eyes) during medical practice; how they learned through practice on the bodies of less-agentive populations (female, raced, or impoverished); and how they crossed intimacy, structural, and physical boundaries through what we term somatic translation: seeing others' bodies with their own. *Manitas* was developed unconsciously by doctors, never explicitly taught or learned in practice, reproducing social difference. These forms of learning highlight a friction between the violence of knowing and the importance of touch as a legitimate mode of care. This form of tactile and sensorial learning entails not only a form of boundary crossing that is medically useful, but it is also a form of boundary crossing that surfaces social inequalities by taking advantage of them. [*hospital ethnography, anthropology of reproduction, embodiment, social boundaries, Mexico*]

RESUMEN Los cuerpos son instrumentos útiles para entender la reproducción de las desigualdades. En este artículo, investigamos por qué y cómo los límites corporales, sociales, íntimos y físicos son cruzados y qué nos puede decir este proceso acerca de los cuerpos individuales y sociales. Analizamos en detalle cómo los procesos de ver y ser visto, tocar y ser tocado, o sentir y ser sentido están condicionados en modos muy particulares por la economía política más amplia. Los participantes en esta investigación etnográfica en México utilizaron el término *manitas* para describir cómo ellos entrenaron sus sentidos (manos, oídos, ojos) durante la práctica médica, cómo aprendieron a través de la práctica sobre los cuerpos de poblaciones con menos agencia (mujeres, racializadas, o empobrecidas), y cómo cruzaron varios límites (intimidad, estructurales y físicos) a través de lo que llamamos traducción somática: ver los cuerpos de otros con el de uno mismo. *Manitas* fue desarrollado inconscientemente por doctores, nunca explícitamente enseñado o aprendido en la práctica, reproduciendo las diferencias sociales. Estas formas de aprendizaje recalcan una fricción entre la violencia del saber y la importancia del tocar como un modo legítimo de atención. Esta forma de aprendizaje táctil y sensorial implica no sólo una forma de cruzar límites que es útil médicamente, sino también una forma de cruzar límites que aflora desigualdades sociales al aprovecharse de ellas. [*etnografía de hospital, antropología de la reproducción, corporeización, límites sociales, México*]

How are social, intimate, and physical boundaries crossed during certain interactions? What factors structure the ways that these boundaries can be crossed, and by whom? What determines whose boundaries are crossed and whose are not? How do bodies interact to create and reconfigure knowledge about boundaries and their crossing? In this article, we address these questions using data from our research on medical training in Mexico. Drawing on frameworks of embodied learning (Cohen 2010; Downey 2010; Harris 2016; Prentice 2013) and of sensory skills in training (Rose 1999; Van Dongen and Elema 2001; Van Drie 2013), we unpack how knowing and being known, seeing and being seen, touching and being touched, or feeling and being felt are conditioned in particular ways by the broader political economy. The physicians and medical trainees we interviewed repeatedly emphasized that their biomedical practice and expertise did not mean simply diagnosing, providing a prognosis, and establishing treatment but also encompassed a “grounded cognition” (Cohen 2010, S194) in the development, maintenance, and refinement of the ability to use their bodies to touch, examine, probe, or cut the bodies of their patients.

Interns in their early years of medical training, especially, seemed to grapple with the acquisition of such skills, appreciating the ability to engage in practice but also acknowledging how complex it was to learn these skills. Though using their hands was a key part of their practice, they also used many other parts of their bodies (like fingers, arms, ears, noses, or backs) in their clinical interactions with patients. All of these body parts served as social objects, connecting bodies (those of patients and practitioners) across multiple boundaries—the physical boundaries of the skin; the social boundaries of class, race, or gender; and the sensory boundaries of the emic patient body and the etic physician body.

The primary research question driving the larger ethnographic project of which this study is a part is how medical students internalize the values, skills, and ideas of medicine in their journey through medical school. Based on our findings, we theorize that abstract medical knowledge is internalized through what we have termed *somatic translation*, or the embodied process of learning, repeating, and making the body (of both patient and physician) legible. This embodiment approach emphasizes the bidirectionality of the material, neural, and physical realms with the conceptual, behavioral, or perceptual ones (Cohen 2010; Downey 2010). As bodies are trained to know and perceive, they change and are shaped by this knowledge (Harris 2016), what Downey (2010) calls an alteration of the organic architecture of the body. That is, embodiment entails a complete change in a person (from neural and perceptual to anatomical) so they can “accomplish tasks, that, prior to enskillment, were impossible” (Downey 2010, S35).

In this article, we analyze how somatic translation and the oft-repeated phrase among our interlocutors of *manitas* (“being hands-on,” though with a deeper meaning, as we

elaborate ahead) intersect with the broader political economy (particularly gender, skin color, and class differences). We address the effect of this intersection on the bodily practices of doctors when they interact with their patients, asking what social effects these practices produce. In this manner, we elaborate on the ways that class and ethnic differences are learned and perpetuated through medical bodies. Thus, we can analyze how these deeper structures that shape the social life of hands also somatically translate medical expertise and care toward particular types of social difference. Building on Prentice’s (2005) work on mutual articulation, Taylor’s (2005) concept of surfacing the body’s interior, Good’s (1994) analysis of how medicine constructs its objects, and Harris’s (2016) study of how bodies are configured through multisensory practice, we deepen the analysis of embodied practice by adding a broader political economic framework to examine how skillful practice is cultivated, is deeply embedded in the clinical and diagnostic process, and is part of medical encounters. While the clinical hand is often the first point of contact between a patient and biomedical care, and is very much in use in medical practice, physicians use many parts of their bodies in complex ways to examine their patients (through observation, palpation, percussion, and auscultation). Their medical bodies can therefore connect and create distance, cross boundaries as allowed through social scripts, and wield technology and implements to cut, suture, examine, puncture, touch, or heal a patient’s body.

BOUNDARIES AND EMBODIED LEARNING

At first glance, this study seems to be a hospital ethnography focused on biomedical spaces and medical learning (Cassell 1998; Good 1994; Ofri 2003). Upon closer examination, however, our article delves deeply into the central nature of learning, embodiment, and the role of sensory skills as diagnostic tools and as mediators of experiences. As has been powerfully argued by several scholars (Cohen 2010; Harris 2016) working on diverse populations, such as martial artists (Downey 2010; Samudra 2008; Torres Colón 2018; Wacquant 2005), PhD students (Myers 2012), jazz musicians (Wilf 2015), and healers (Harris 2016; Hinojosa 2002; Rice 2008), the body is central to the creation of knowledge, becoming the object as well as the means of inquiry (Wacquant 2005). Cohen (2010) emphasizes the strong connection between bodies, brains, and the environment in informing and constraining learning; indeed, this approach complicates Bourdieu’s (1990) concept of habitus by presenting it as a much more heterogeneous and not completely unified process (Downey 2010). Embodied knowledge is about crafting the body through repeated and learned movements, where techniques might not feel natural to a person (Harris 2016). In this process, practitioners learn to render their embodied experiences into words (Samudra 2008). Thus, embodiment occurs in both unconscious and conscious ways; when someone is learning to bodily acquire techniques, they bring their body “into and out of consciousness in order to focus upon a technique before it becomes automatized” (Downey 2010,

S26). Other scholars have similarly observed that learning occurs when people learn to do and value new things in the process of their daily practice (Billett 2016); learning is embedded in a specific context as learners acquire knowledge through practice, thereby “making it their own” (Egan and Jaye 2009, 111). This type of bodywork can animate knowledge and test ideas (Myers 2012). In addition, when knowledge is retrieved from memory, a partial reenactment of the original situation takes place—what Cohen (2010, S195) describes as “being there.”

Our study takes a close look at the tension between embodied learning and the crossing of boundaries. We draw from Wenger’s (2010) analysis of boundaries in communities of practice, which often have fluid and unspoken boundaries. As he states, exciting things happen at the boundaries—it is the edge of the known and the beginning of the unknown. Competence and experience need to converge within the core of communities of practice, allowing people in that community to have a shared understanding of what they know. Boundaries, however, can create tension between competence and experience, and are thus “places where perspectives meet and new possibilities arise” (Wenger 2010, 126). We broaden Wenger’s concept of boundaries by applying it to social boundaries, physical boundaries, or intimacy boundaries to explain what happens during interactions between bodies and how the crossing of boundaries is an essential, but often troubling, part of learning. In essence, we argue the more boundaries that are crossed, the more skills and techniques are learned. In the process, this embodied learning can often bring some of the unconscious perspectives or practices to the surface (Downey 2010) and can blur the boundaries between the bodies of learners and those learned upon (Harris 2016). We add a political economic perspective to this argument to show how in places such as Mexico, with deep fissures between vulnerable and agentive populations, the bulk of the patients who medical students learn upon are economically or socially vulnerable; their bodies are seen to have fewer boundaries—or more permeable or breachable boundaries—and are thus more likely to receive treatment by unskilled and unpracticed medical trainees.

Our conclusions are consistent with Taylor’s (2005) analysis of how practice allows for what she refers to as a surfacing of the body’s interior—that is, troubling the boundary between the inside and the outside of the body—in the process, making the hidden visible. Through learning the body of a patient and cultivating their own bodies, doctors become adept at reading what lies beneath the surface of the body. Surfacing the body allows a practitioner to understand the “anatomical geography” (Street 2014, 92) by looking at, feeling, and writing about the body to reveal the hidden terrain under the skin, making it knowable. This process crosses social, intimate, and physical boundaries, and, we argue, can be a potentially violent way of knowing because it disrupts conventional boundaries of the individual and social bodies (see also Draper 2002). As Prentice (2007, 537)

has shown, part of this process involves “defamiliarizing” medical students with their own bodies so they can begin to embody the expectations of medical practice through “highly structured practice.” Medical students can learn to break the social rules they are accustomed to and touch people in ways they would not in other encounters, or in ways with which they are not familiar. In this process, Hirschauer’s (1991) analysis of bodies in surgery suggests the learner’s individuality is lost, replaced by an aggregate medical body where the boundaries of the self disappear because everyone knows what their individual and combined bodies are meant to do.

Hands and body parts are perceptual instruments and can sense while they act (Anderson and Dietrich 2012); thus, a central part of this training is learning to discipline the body’s senses (Hirschauer 1991), such as touch, sight, sound, or smell. This haptic approach allows one to gain knowledge of the world (Draper 2002), and, as Prentice (2005, 539) argues, this process of disciplining the body and the hands is “among the difficult early lessons” in medical training. This training is especially complex given that many of these senses are intertwined. For instance, as Harris (2016) describes, percussion is not just about the sound of the body percussed but is also about the *feel* of the vibrations through one’s hands.

Our study focuses not only on the role of the medical body but also on the boundaries it is allowed to cross. Medical bodies are what Wenger (2010, 128) refers to as boundary objects: they find their value in being able to connect across boundaries. As we discovered during our interviews, body parts—such as hands, fingers, or ears—become instruments that allow medical practitioners to move across boundaries. A surgeon’s hands can move an assistant’s hands while cutting a patient’s body, a first-year gynecology resident’s fingers can do a pelvic exam on a woman in labor, or an intern’s hands can palpate a patient’s pregnant belly to determine fetal position while their ears can hear the fetal heartbeat. But not just any bodies can cross these boundaries; only medical bodies can do so because of social conventions and because clinicians are experts who have the requisite skills. As we discovered, not all clinicians can cross the same social, physical, or sensory boundaries. As a tool of the trade, we argue, the medical body acts as a mediator, closing the social distance between practitioner and patient. Physicians come to *know* their bodies during their training, understanding them as extensions not only of themselves but of the community as well.

ETHNOGRAPHIC ENCOUNTERS

Medical education in Mexico has been shaped as much by nationalism as by political economy. After the 1910 revolution (which called for greater social welfare for workers), there was an increased focus on health reforms for state workers and an expansion of the hospital system. There was a concomitant massive increase in the education of medical students to serve in these new hospitals and clinics; new

policies included the standardization of medical education (to the present-day length of five years) and the establishment of the internship and the year of social service as integral parts of medical training (Gómez-Dantés et al. 2011). The internship became a way for medical students to gain the skills and practices involved in clinical care. Interns learn the practices of a hospital, including how to do simple procedures and how to manage patients' charts and paperwork. Over the course of a year, interns rotate through the various wards of a hospital (e.g., emergency, obstetrics, surgery, pediatrics) and learn the theories, procedures, and skills of each of these areas of medicine. After their internship, all medical students are required to perform a year of social service before they can practice medicine professionally. This practice serves to connect medical care to the country's ideology of serving and developing the nation by sending trainees to underserved rural regions of the country (Finkler 2001). It is important to note that because most of the medical students hail from urban places, their social service experiences and narratives often reinforce persistent prejudices about rural and indigenous communities (Laveaga 2013). These nationalistic ideals of serving the health of the country have long since faltered. Since the early 1980s, the country has had several health care reforms, brought on by a combination of a massive economic downturn, the neoliberalizing of health care, and the realization that much of the country was unable to access biomedical care (Homedes and Ugalde 2009). Thus, the country is facing a significant medical crisis wherein patients feel that the medical care they receive in public settings is substandard while doctors are demanding less-abusive working conditions—more humane shifts, fewer patients per clinician, better infrastructure, and more resources.

This research was conducted in the city of Puebla, Mexico, which has slightly more than 1.5 million people living within the city limits (INEGI 2017) and perhaps another 300,000 to 400,000 people in the larger metropolitan area, of whom almost half have no medical insurance (INEGI 2014). The data on which this article is based were collected during six months of research over the course of three years (2013–2016), though most of the fieldwork was conducted during an extended field season from January to May 2016, with a brief follow-up visit in December 2016. The study draws on two anthropological traditions—in-depth ethnographic research and social network analysis—to understand how interns acquire medical knowledge, skills, and values. Both authors collected the ethnographic and social network data.¹

This research took place at three locations in Puebla: a public hospital (“Hospital Salud”), a private hospital (“Hospital Piedad”), and a medical school (“Universidad Médica”).² In 2016, Hospital Salud had 130 beds and 52 interns and 104 residents across all main hospital areas.³ Its patients were enrolled in this hospital's care because they or one of their family members worked for the government; these patients were primarily lower-middle class and working class.

Hospital Piedad was a small private teaching hospital affiliated with Universidad Médica, a private university with about 2,000 medical students. This hospital served middle- and upper-middle-class patients as well as some less affluent patients whose companies provided them with health insurance. It had 40 beds in 2016; it was affiliated with a larger private hospital system and had a bigger staff of physicians than its size would suggest.⁴ All Piedad's interns were students at Universidad Médica, and many of its physicians were also professors at the university. In 2016, it had 22 interns and 5 residents.

Our participants (total $n = 177$) were students at Universidad Médica ($n = 82$), medical interns ($n = 50$ from Hospital Salud; $n = 26$ from Hospital Piedad), residents ($n = 4$, two at each hospital), and physicians ($n = 11$ from Hospital Piedad; $n = 1$ from Hospital Salud; $n = 3$ from Universidad Médica). All of these participants agreed to short interviews on medical practice. Our engagement with the interns consisted of 301.5 hours of rich observation of their practice, formal classes, clinical rounds, and case history presentations. We spent time with them in procedures in the surgery and obstetric and gynecology wards, as well as in the emergency room. During these encounters, we also observed their interactions with other members of the clinical team. Additionally, we asked interns to identify whom in their hospital network they asked for advice and what sort of advice they sought.

We also carried out longer, semi-structured interviews with 93 participants (52 percent of the total participants), and audio-recorded 83 of them (exceptions were at the request of the participant). During our interviews with interns ($n = 37$), we asked about their perceptions of life as medical practitioners, their views on the role of stress in their training, and their expectations and experiences with mentorship. Our interviews with residents ($n = 4$) and physicians ($n = 15$) focused on how they were trained, how they approached mentorship and teaching, and how they had learned certain skills. The interviews with medical students ($n = 37$) addressed their definitions of good and bad doctors; their interactions with patients, mentors, and peers; and their plans and expectations for the internship year. In order to address the broader political economy of health care in Mexico, we asked all participants about what they considered to be the primary issues in the country's medical care system and what they would fix if they could.

Interviews were conducted in Spanish by both authors. Smith-Oka is a native Spanish speaker, and both authors are very comfortable in the Mexican medical settings. Interviews were transcribed into text by transcription services and student research assistants and were subsequently standardized, corrected, and systematized by Smith-Oka. For our analysis, we uploaded the data into MAXQDA software. Then, following the systematic approaches outlined by Ryan and Bernard (2003) and Bernard, Wutich, and Ryan (2017), we carried out a first level of theme identification using five observational techniques to find patterns in the

data: word repetition (recurring words and ideas), indigenous categories (*in vivo* coding, identifying culturally salient terms), metaphors (identifying underlying ideas and themes that people use when they speak in metaphors and analogies), missing data (asking what is missing or lacking from the data), and theory-related material (how the data illuminates issues of theoretical importance to anthropology).⁵ These techniques allowed us to analyze the data to understand our participants' schemas about the body, boundaries, and training.

EMBODYING MEDICINE IN MEXICO

As we examined the responses we collected, it became increasingly clear that clinicians learned to use their bodies as medical implements by converting theory (book knowledge) into practice (practical, skill-based knowledge). In this situated learning (Lave and Wenger 1991), medical trainees shifted from acquiring transmitted knowledge to constructing knowledge through practice in an embodied way. In the process, they also learned how to cross boundaries.

We first became interested in exploring the role of bodies in medical training after our participants began elaborating on the process of *meter mano* and *hacer manitas*, which on the surface mean putting one's hands into someone's body and thereby getting them "dirty" through practice. Interns stated that "*hacer manitas* [is] where you are allowed to touch the patient." The phrases go beyond simply hands and touch, however, instead emphasizing the crossing of bodily boundaries and of entering the bodies of others by using a multisensorial approach. Both expressions can also carry a more sexual innuendo, especially the sense of groping and fooling around, which also conveys a sense of dirtiness, though of a different kind. Some of this dirtiness also involves the discomfort of crossing bodily and intimate boundaries. "It smells bad," was what one male intern said regarding patients in obstetrics and gynecology (though he was unconcerned about the odors in urology, his dream specialty). Thus, the meaning of *manitas* suggests the use of hands and other body parts to cross boundaries to become sensorially familiar with another's body—whether of a patient or a lover. *Manitas* and *manos* are thus synecdoches for the body itself. These multiple meanings of the expressions convey a pragmatic boundary crossing but also a certain ambivalence about moving across these intimate (or viscerally provocative) boundaries of the body. *Manitas* thus bring to light the different aspects of the social field in medicine. *Manitas* allow doctors to get dirty by touching a patient; they can directly detect "unseen problems" by linking to another's body with one's own (Hinojosa 2002, 23), by surfacing the body (Taylor 2005) and allowing them to understand sensory experiences such as the "feel of a scalpel on human flesh" (Wendland 2010, 91). Similar to the doctors in Harris's (2016) work who were learning percussion techniques, the trainees in our research learned, through *manitas*, embodied techniques for identifying bodily sensory differences and similarities and also developed a greater awareness

and sensibility of their own bodies and those of their patients, what Harris calls "the strangers within" (51).

Based on the themes that emerged from our data analysis and the theoretical insights we gained from our review of the existing literature, we argue that through *manitas* the bodies of medical practitioners traverse conventional skin and social boundaries as well as structural boundaries of gender, race, and class. They also cross boundaries through what we term *somatic translation* in order to see, feel, and sense others' bodies with their own. We discuss each of these themes below.

TRAVERSING BODILY AND SOCIAL BOUNDARIES

During training and medical encounters, interns were taught to traverse conventional boundaries. By conventional, we mean boundaries that most people are not usually allowed to cross but that clinicians can because of their training and their position in society. These are boundaries of the skin (through cutting skin or entering orifices), of intimacy (viewing, touching, or cutting genitals or other private parts), of social interaction (such as detached touch), or of whose bodies can or cannot be touched (structured through class, gender, and race). These boundaries are both individual and overlapping; that is, some encounters might only breach the boundaries of the skin, while others might simultaneously breach multiple boundaries.

The boundary of the skin can be breached by radiological images, by cutting, or by percussion and palpation, which search for information below the skin's surface, materializing it (see Howes-Mischel 2016; Rice 2008). These processes of "seeing" the body are invasive (Good 1994), making the internal body knowable. Seeing the body is part of the process of what Taylor (2005) calls "surfacing"—bringing to the surface the things that lie beneath it by troubling and disrupting the body's outer boundaries, bringing hidden things into public view. She adds that the term "surfacing" suggests a dynamic tension between movements and performances that simultaneously create and breach surfaces. We can surface the social body as well as the individual body; by troubling the boundaries present in society, we can identify the tensions that exist in the social structure.

Several interns said that their mentors physically guided their hands during procedures so they could learn the motions and begin to internalize the knowledge. Yoselin, an intern at Hospital Piedad, said that "in case there is a complication with something, [the doctors] help us, they move our hand, they guide us." In their different rotations in the hospital, interns also increasingly learned how to touch patients' bodies. They learned the duality of touch (Van Dongen and Elema 2001), which included the utilitarian and practical (e.g., the correct placement and movement of their hands, ears, or eyes) as well as the intimate or emotional, acquiring medical values transmitted by the physicians alongside these technical skills.

Touching patients as a means for diagnosis required that interns practice in order to learn. Interns learned to breach

skin, bodily, and social boundaries by conquering their hesitation about whether to touch or not and developing skilled bodies (Harris 2016) that were not awkward when touching others. César, from Hospital Piedad, said that he was usually fearful when he had to do a procedure for the first time and that the only way he lost that fear was by “doing the things” he had to do. Gabriela told us, “When I say ‘practice,’ I mean just that: to touch the patients . . . so you . . . move your hands properly, right? Sometimes you are afraid, you don’t know if you touch or don’t touch.” They had to learn to listen to the body because touch risks being misinterpreted (Van Dongen and Elema 2001). As researchers have shown, when people first learn a new skill, they are bound by rules, actively thinking through them (Dreyfus 1992) in what Rouse (2013, 251) describes as a “stumbling, bumbling performance” or what Gabriela or César referred to as fear or hesitation. Downey (2010) suggests that bodily training shifts in and out of consciousness when the learner focuses on technique before the practice becomes embodied and automatic. In the case of interns, these new practices might consist of asking how to touch, where to touch, when to touch, and where or when not to touch. Interns thus learned what Young (1997, 3) refers to as an etiquette of touch through which they took over the bodies of their patients while patients simultaneously ceded autonomy of their bodies over to strangers. A social contract of sorts develops at this juncture, where intimate yet objective touch is allowed in medical encounters.

This ceding of patient autonomy was evident in many of the labors and births we witnessed, where the clinician never asked the patient, “Can I touch you?” before doing pelvic exams. Instead, they would inform the patient, “You’ll feel a touch, ma’am.” This type of touch crosses both physical and social boundaries because it penetrates inside the body of a patient. These “territories of the self” (Goffman 1997, 45) conformed by the skin are blurred in these interactions; the body and its sheath of skin belong to the patient, but its territory is laid claim to by the clinician in medical interactions. In the process, the social boundary separating the patient from physician is blurred. We argue that the skin becomes a zone of exclusion, serving as a boundary not only for a person’s interior but also for where decisions come into being about who can touch it and in what way.

Each culture has tactile norms (Van Dongen and Elema 2001). For instance, doctors can touch patients by following social scripts (Henslin and Biggs 1971; Teman 2010) in ways and in places that would not be allowed in other contexts or by other people. Social scripts make medical actions seem “normal” that in other situations would be socially unacceptable. That is, as patients we can be unclothed in the presence of a medical team and touched in ways that are acceptable in that context. These social scripts occur in a liminal context. These same interactions would rarely (if ever) be acceptable outside of the medical space—like a restaurant or a classroom—even with the very same members of the medical team and within minutes of the prior encounter.

The touch of medical hands within a medical space thus transforms intimate touch into objective, detached touch. The medical body is different from the nonmedical body or, even to some degree, the bodies of medical trainees. Thus, the medical body is constituted by an assemblage of factors: the medical implements picked up and handled, the patient body physically examined and interviewed, the social roles and scripts within the institution of medicine, or the expertise of the medical person. All of these factors allow the medical body to cross boundaries that other bodies cannot.

CROSSING STRUCTURAL BOUNDARIES OF RACE, GENDER, AND CLASS

The most significant boundaries crossed in these medical contexts were not just of skin or social etiquette but those structured by class, gender, and race/skin color. As Prentice (2007) has pointed out, medical training simultaneously embodies technical and social lessons. In these settings, the social lessons consisted of learning the role of rank and hierarchy, how to touch, who one could touch, and in what way. In the process, these lessons also (unintentionally) imparted information on which bodies mattered and which ones did not.

The care at public and private Mexican hospitals clearly illustrates this breach of boundaries, as medical interactions were very different in each type of hospital. Social and economic differences are often mapped onto hospital types and spaces, which frequently reflect the intertwining of class and color. Public hospitals are government funded and usually serve the lower socioeconomic sectors of the population. These institutions tend to be quite large, usually have a high patient load and concomitant high patient-to-clinician ratio, and often (though not always) operate in run-down facilities and with older technology. In contrast, the private medical system is reserved for those who can afford to pay the premiums or whose employers pay a private insurance company for care. Both types of hospitals share several characteristics that shape, in important ways, the training received by interns and residents, who spend a very large portion of their week in the hospitals. All hospitals in Mexico employ *guardias*—extended shifts where interns and residents are on call and remain in the hospital for more than thirty hours. These long, grueling training gauntlets involve embodied and material changes to the trainees’ bodies, such as the ability to function with little to no sleep and high stress (see also Downey 2010).

The political economy of health care in Mexico structures things like patient volume, infrastructure, access to health care, and patient agency. Thus, in high-volume public hospitals, interns had ample exposure to more cases and more experiential learning because there were not enough full-time (and skilled) clinicians to care for all the patients. But it also meant that trainees had less time to rest during their *guardias* and less direct guidance by superiors, potentially leading to an increase in mistakes and iatrogenic rates. In private hospitals, the *guardias* were just as long

but the workload was lower, as the hospitals placed much greater emphasis on low patient-to-clinician ratios and protecting the rights of paying patients. In these spaces, medical trainees were not allowed to touch patients as freely as in public hospitals. Thus, interns in private hospitals may get less sink-or-swim practice but greater guidance on developing their technique and skills, and more time to study to pass their residency exams.

Many interns told us that public institutions provided excellent ways to practice without the worry of patients' refusing treatment; patients in public institutions had little to no choice about some of the medical procedures they underwent or the number (and experience level) of people who could touch them (Smith-Oka 2013). These differences in patient agency greatly affected how doctors crossed boundaries.

Many of the interns emphasized that their ability to do *manitas* was much greater in public hospitals. In fact, many of them chose public hospitals precisely *because* they could practice as much as they wanted to, with little attention to patient choice. Carmen, an intern at the public Hospital Salud, said she specifically chose not to do her internship in a private hospital because "there are not many patients, and [the doctors] don't let you *meter mano*, because in a private one the patients don't want that." An intern at private Hospital Piedad also saw this difference as a potential advantage: "In public hospitals, sometimes cases go there that you will never see in your life, and in the private ones you probably have less opportunity to do that. But, well, they both have their pros and cons. In the private ones you can read, you can continue studying and preparing for . . . the national exam [akin to the US Boards], and in the public ones you can *hacer manitas*."

Samantha's case illustrates the troubling breaching of boundaries in learning medicine. She was an intern at Hospital Piedad who participated in a month-long external rotation at a public hospital to gain more experience in obstetrics and gynecology (this rotation was routine for all interns at Piedad). A few days after she returned to Piedad from her rotation, we sat down in the hospital's cafeteria for coffee and to chat about her experiences during that month. She told us how one day the labor ward was very full, with many of the patients slated for cesareans. In order to triage the care of patients, the residents went into the cesareans, leaving the bulk of the management of labor and vaginal deliveries to the interns that day. In our conversation, she said she had participated as an assistant in a few vaginal births before but had no actual experience attending one, especially by herself. Despite this, she said that a female resident told her, "You know what? You can attend [a vaginal birth] alone."

She said she prepared for the delivery while the resident was in the other room attending to a cesarean and calling out instructions to her. One of the first instructions was to do the episiotomy (the perineal cut used to enlarge the vaginal opening, routine at most hospitals in Mexico). She told us she had never done an episiotomy before, "And I'm,

like, 'Ay! . . . Oh well, I'll do it.'" She added that she then thought to herself, "The problem isn't doing it, but rather afterwards when I have to repair it [suture it]. How will I do that?" She said that the residents had explained to her how to do the procedure earlier but that it "was the first time I did it without someone observing what I was doing." Thus, with little guidance from more experienced physicians, she proceeded to figure out how to suture the patient's incision. Preferring to err on the side of caution, she asked one of the other interns in the hospital to help her. However, the other intern was also unsure of how to suture an episiotomy, and so together they figured it out as best they could. She shrugged and said, "I mean, I'm not sure if it was a good job, but . . ."

What was perhaps most salient about Samantha's narrative was the fact that she seemed to have little concern about the effects of her untrained hand suturing a very intimate area of a woman's anatomy where, if the sutures were badly placed and the incision did not heal properly, the procedure could cause the patient significant and/or long-term pain or discomfort, as well as other morbidities (such as incontinence or pain during sex; Karaçam and Eroğlu 2003; Lappen and Gossett 2010). We asked her whether any of the residents or physicians inspected the sutures afterward. Samantha replied, seeming unsure, "I think they might have examined her in recovery But, yeah, it was only us interns who attended to this patient." We probed more into some of the implications of her involvement in the patient's delivery, especially whether she felt she did a good job. Samantha replied by focusing on the immediate symptoms of infection rather than on whether she had the skills to do a good job for the patient's long-term well-being, "Yes, yes, it was good, because the worry is whether she develops a fever while in recovery, or she is bleeding, like if I didn't do something right."

The broader concern in situations such as Samantha's is not only that procedures done by untrained people can have significant consequences for patients; this situation also brings up important aspects of whose bodies are used as training and practice grounds for physicians. As Julieta stated, "The thought is that you can do what you want in a public [hospital], and the patients don't insist on their right to complain." When we asked Samantha about whether she ever thought about the ethical questions regarding her and other interns doing procedures with little training, she replied, "I think that because there are so many patients there, the [residents] don't notice. And, well, at least the ones who already trusted us would ask us to attend to the [patients]." Her focus was less about the ethics of learning on certain bodies, or even about the unassailable fact that the high volume of patients necessitated someone to care for them (even if they were unskilled), and more about gaining the respect and trust of residents who would subsequently allow her to carry out procedures. In this example, a tension exists between two modes of touch. On the one hand, touch closes the physical distance between clinicians and patients, while on the other,

touch symbolically reinstates this distance through the process of conducting episiotomies without concern for the patient's long-term well-being.

In private hospitals, the practice of interns is much more supervised and guided. Mauricio stated that all the moments of guidance at Piedad helped him to practice, adding, "Not only in a cesarean but also in a surgery they let you do one or two sutures So you begin acquiring a certain *maña* (knack), well, technique, but also *maña*." Doctor Luna, an OB/GYN we met at the private hospital (but whose second job was at a high-volume public hospital in the city), bemoaned the training undertaken by the interns in private hospitals. He believed that all interns needed many more skills before they left for their year of social service. He said they should "attend a birth, do an episiotomy, repair it. They need to know how to begin treatments of *all* pathologies They also need to know how we attend [a birth], and we let them do it little by little. Here it is difficult for them to *meter mano*. In teaching hospitals they are told, 'You figure it out.' The problem is that this is both a teaching *and* a private hospital. The workload is very scant compared to [public ones]."

In vaginal births with private hospital patients, the trainees shifted from the center of the action to the periphery, in contrast to the experiences of interns such as Samantha in public hospitals, where trainees could carry out many of the procedures themselves. The majority of the procedures were done by the attending physicians, and only occasionally would an intern carry out a pelvic exam or other procedure. Mauricio stated, "It depends upon the attending physician. There are some who tell you, 'You know what? Not today.' And others who do let you." But the private patient's permission was always requested prior to an untrained hand working on them. In contrast, the permission of patients in public hospitals was not sought. Rarely did these facilities disclose or discuss with patients the fact that interns did many of the procedures. Indeed, because clinicians all wear similar clothes (scrubs or white coat), only a patient familiar with medical hierarchy and status would know who was an intern and who was a physician.

It is clear that training in these public spaces did not emphasize learning skills in the "right" way but rather was about the repetition of techniques without quite knowing the what, how, or why behind them. Almost all the interns reported that public hospitals were for practicing and private hospitals were for learning. As Mauricio said of public hospitals, "They teach you two, three times, and *órale* [go!]" Indeed, when we discussed patient care and rights with him, especially comparing the care between both types of hospitals, he stated, "It's kind of like in a private hospital one has to be a bit, well . . . the idea is that you have to be a bit more careful of the patients, right? They are paying. And in the public sector [the practitioners] are a little bit more careless that way." César added, "I believe that in a private [hospital] they look after the patient better [*cuidan un poco más al paciente*]." (Here, the term *cuidar* can refer to the quality

of care but also to careful care.) He paused and said, "The attention is more personalized, the nurses are more attentive, and many times with private patients they don't allow students to practice as much, right?" He added that in public hospitals an intern could do rounds with the doctor and be allowed to do examinations on pregnant women, "and you can also do the gynecological examination and such; but not so much in a private one."

In these interns' words, we find an interesting dynamic between two forms of care: careful and careless. The "careful" practice in private hospitals suggests a physical distance, where the patient body is not touched by just anyone, evidencing a form of tactile respect. There is a simultaneous social closeness that is marked by politeness and a respect for a certain amount of bodily autonomy. The "careless" practice in public hospitals, on the other hand, is almost the reverse: a physical closeness between patients and clinicians resulting from being touched by more people, where patients' boundaries are breached more easily and where the lack of patient bodily autonomy reflects a social distance between them and the clinicians. In fact, we would argue that the bodies of patients in public hospitals are seen to have more porous or fluid social boundaries because they can be breached with greater ease. In contrast, the bodies of private hospital patients are more socially rigid and less able to be breached.

Based on our evidence, we argue that medical interactions between patients and physicians at public hospitals cross structural boundaries. The bodies being penetrated and touched belong to patients with less agency—created through an intersection of structural aspects like gender, skin color, and class. These patients are used as training wheels for interns and residents who need more practice in certain techniques. The external rotation at the public hospital for interns from Piedad is illustrative of this dynamic because interns would be unable to learn the requisite skills with paying patients (who would rarely allow untrained hands on them). Thus, interns practiced these skills in a public hospital with nonpaying patients. In these public hospital settings, there can sometimes be an unintended lack of regard for the welfare of the patient because there is no time and few staff members to do this kind of in-depth, careful work. Our data demonstrate this by the lack of direct observation of Samantha's technique during the vaginal birth and episiotomy or afterward, which can be compared with the ways that Mauricio, César, and other interns at Piedad were closely observed and supervised as they learned.

In addition to the fact that the bodies being practiced upon are mostly poor and darker-skinned, and have less agency, is the troubling reality that those practicing on them are usually middle class, lighter-skinned, and educated. The purpose of this system is to export practice from private hospitals to public ones, leveraging the high patient volume to their own advantage and bypassing legal, ethical, or moral concerns. Thus, underprivileged patients are vital to the production of medical competency. A similar

structure can be found in the global health and medical programs in resource-rich countries that send their students for practicums to resource-poor countries, which Wendland (2012, 110) refers to as “clinical tourism.” In her analysis, she argues that “the wretchedness of clinical practice” depends on “a contrast with medicine as practiced elsewhere, remembered or imagined” (113). Such social hierarchies have historically played a role in defining who gets to be the practitioner and who gets to be practiced upon. In these contexts, Sullivan (2018) states, doctors are able to justify the practices and interventions (like in the public hospital) that would be wholly unacceptable at home (like in the private hospital). As Erikson and Wendland (2014) state, these systems replicate patterns of (dis)advantage where impoverished and/or darker-skinned populations enter medical engagements as test subjects on which others may learn. Ultimately, they argue, these systems look increasingly like colonial medicine rather than ones with an equal playing field.

CROSSING BOUNDARIES THROUGH SOMATIC TRANSLATION

Doctor Marco, one of the OB/GYN residents at Hospital Salud, the public hospital, was our first participant to frame the idea of using the body as a tool alongside other medical technology, such as sutures or stethoscopes. One of the primary duties of junior residents like him was to manage the early stages of labor and to measure how dilated a patient was by conducting a pelvic exam, which in Mexico is called a *tacto* (translated as a “touch,” in layman’s terms). Describing this technique, Doctor Marco said, “Our tools are our hands; hence, one always has to know, and it’s what I have always told the interns, they have to know what their hand measures.” For him, knowing one’s measurements directly translated to efficacy and practice when crossing patients’ bodily boundaries, in the process developing what Harris (2016) termed a “resonating body.” The body thus functioned as an instrument, providing doctors the opportunity to perform a technique, developing their bodily practice while also obtaining tactile data from their patients (Rose 1999).

Doctor Valentina, a third-year resident at Hospital Salud, said that she learned to measure dilation by doing *tactos* in medical school using mannequins, which helped medical students begin to learn to manually understand the boundaries of the body by using their sense of touch in situations where they could not see what they were touching. These students translated touch and sensation into knowledge and understanding of the body.⁶ In hospitals with a live patient, the only way for interns and residents to do a *tacto* was by inserting their fingers into a patient’s vagina and to measure her cervix. These *tactos* are incredibly intimate—traversing social and physical boundaries that are not allowed for just anyone. Yet they are also remarkably commonplace. Every patient in labor was subject to this type of interaction, in many cases repeatedly and by different clinicians. Julieta stated, “different people are *tactando* the patient every half

hour, and that is super counter-indicated; it should not happen.” Samantha said that in the obstetrics ward in the public hospital, all the patients receive a *tacto*, adding that “the resident would tell me, ‘Come and feel this, and these are the normal characteristics, and these are the characteristics of when she is in labor,’ and so forth. So he would tell me that and then tell me, ‘Do the *tacto*.’” Doctor Marco emphasized to the interns under his care that to make accurate measurements, they had to know “how long their hand is, how wide their hand is, and they have to know this when they open up [their hand]. Because after all, what for me might be seven centimeters, for someone [else] could be eight, right? But the [interns] have to learn what their hand measures.” As Victoria noted, holding up her fingers to show their dimensions, “Like this it is two centimeters, because my fingers are little. But there are fatter fingers where this is already three centimeters. But mine are like this; I would calculate this as two [centimeters]. Like that.”

We refer to this process of learning, repeating, and measuring as *somatic translation*. Somatic translation is a way for physicians to read the patient’s body with their own, in the process crafting their own bodies. This process equates the bodies of patients and physicians as they both become objects of measurement. When interns were first learning, their skills were not yet developed; the more interns practiced, the more they learned the “feel” of what they were doing and thus learned to do it correctly (Prentice 2007). They might have been aware of the measurement of their hands or fingers prior to inserting them into the body of a patient, but they really grew to know them as tools once they used them inside a patient’s body. Somatic translation provided them very different information from the information provided by technology. If it were enough to simply measure dilation during a laboring patient’s *tacto*, calipers would be the tool of choice. But a *tacto* is also about the texture of the cervix, its thickness, or its feel—qualities that are inadequately conveyed by any one instrument and whose minutiae must be learned in order to understand what they are feeling and how to turn it into words (Rose 1999; see also Samudra 2008). By attuning their bodies to learn all the differences, they developed what Harris (2016) termed an “affected body.” In this process of doing a *tacto*, clinicians’ bodies become boundary objects (Wenger 2010) that cross boundaries of skin and intimacy, and their authoritative knowledge about their own bodies supplants the information gleaned from technology while also closing the physical distance between themselves and their patients.

As these clinicians argued, a basic understanding of one’s bodily dimensions made it a better tool of measurement. In this process, physicians and medical trainees converted their nonstandard units of measurement (their bodies) into standard units of measurement (in this case, centimeters) used in biomedical contexts across the world. Knowing their bodies and their measurements also allowed them to translate a highly intimate form of touch (genital touching) into a

detached form of touch (pelvic exam). A juxtaposition exists between the invasiveness of a *tacto* and the ways that physicians learned to delimit and de-erogenize certain forms of intimacy, especially when the patients were all female and the practitioners were not always so. We argue that this process is created by other forms of translation, such as anonymization, where physicians translate a person into a patient, or fragmentation, where a whole person (or patient) is translated into particular body parts. The interns we interviewed did not feel they were touching a person in an intimate way but instead were examining the cervix and vaginal walls of a patient in a detached, clinical, and impersonal manner.

Near the end of her internship at Hospital Piedad, Gabriela reflected on the process by which she had trained her body to cross boundaries. Using the metaphor of sightedness, she said it was only by practice that she learned to see. Combining both the senses of sight and touch in reference to inserting an intravenous needle, she claimed, “At first it’s like having blind hands. You can’t find the veins. And so ‘*hacer manitas*’ for me [means] that you try to insert once, you try twice, you try three times, and you start getting skilled with your hands, you more easily identify the structures that you have to know to carry out these procedures.” Describing the first time she touched a pregnant patient, she recounted that “my *compañero* [workmate] told me, ‘This is a contraction.’ I couldn’t feel anything. But [afterward] I would touch [patients], and touch one and [then] another and another, and each time it was easier [to see].” For Gabriela, the process of crossing boundaries of the body was inseparable from touching and seeing. Through these repeated micropractices, she recalibrated her own body (Wilf 2015) to effectively obtain tactile data from her patients’ bodies (Rose 1999). The more she touched, the more tissue she stretched and handled, the more she was able to see and cross the boundaries of the body, and the more she saw, the more information she was able to glean from her touch. Thus, the translational process of seeing is initiated the moment the boundary between the physician’s body and the patient’s body is crossed.

Through the process of conducting these examinations, therefore, the clinician’s own body has “synthesized the look, feel, and motions” (Prentice 2013, 175) of the patient’s body, allowing clinicians a clearer view and understanding of that body below its surface. Our analysis shows that interns eventually shifted from seeing the whole body they were touching, cutting, or suturing to focusing intently on the part of the body they were examining, going less by sight and more by feel and understanding of the way the body tissues are set up—like Gabriela’s increased understanding of what a contraction felt like. This process of crossing these boundaries, we argue, translates into an ability to “see” with one’s body. One might argue that this is one of the most profound forms of boundary crossing, producing a type of embodied cohabitation, commingling the bodies of both physician and patient.

WHY CROSSING BOUNDARIES MATTERS

Because medical bodies can traverse social, physical, structural, and intimacy boundaries that are normally more delineated, they become good instruments for understanding the reproduction of health inequalities through somatic translation and practice. These medical bodies cross various boundaries in ways that map onto and reproduce social differences. This process, in turn, tells us about how certain populations are viewed and treated by society. The processes of *manitas* and *tacto* that we have described mirror a disconnection between the violence of knowing, on the one hand, and the importance of touch as a legitimate mode of care, on the other. The reason why this tension matters is because this form of tactile and sensorial learning entails not only a form of boundary crossing that is medically useful but also a form of boundary crossing that “surfaces” various social inequalities in Mexico by taking advantage of them. We can think of this process as surfacing the *social body’s* interior, which unveils and makes visible the various frameworks and structures of society. Thus, the ways the boundaries are crossed become indicators for the structure of a population, which are subsequently unconsciously reproduced within a hospital space. The interactions between people in these clinical spaces are what materialize these boundaries. In the process, one can identify how and why different patient “types” receive different treatment and care from the physicians and medical trainees. The boundaries of their bodies are seen to be different, with different social rules attached to them. Namely, bodies that belong to female, raced, or impoverished populations are seen to be more permeable—their boundaries are more easily breached and have fewer social rules attached to them—while bodies belonging to male, white, or wealthier populations are seen to possess stronger, more impermeable boundaries that can only be breached in certain contexts and by certain people.

Yet the knowledge of these boundaries might be unconscious. Like the capoeira practitioners in Downey’s (2010) research who accept *malicia* (cunning) as a guiding principle in their martial art, the deeper meaning of *manitas* (as a reproduction of social difference and of boundary crossing) is also developed unconsciously by doctors, never explicitly taught or learned in practice. This process is produced through the combination of publicly available symbols (of medicine, of class or skin color, of gender, of doctors as gods, etc.) and the invisible schema of cognition and action, consisting of factors regarding what is being learned as well as how, why, and under what circumstances (what Wacquant [2005] refers to as “out there” and “in here,” respectively).

Medical practitioners traverse social and class boundaries regarding what bodies can be touched (and practiced upon) and which ones cannot. Indeed, medical bodies in these contexts *reinforce* class boundaries, where impoverished or darker-skinned patients cannot refuse to be touched or they risk being scolded—or worse, losing health care. Conversely, middle- and upper-class (or lighter-skinned) patients do have the agency to refuse to be touched by a

trainee, and in private hospitals, they routinely do so. Medical trainees in these contexts do not simply learn about medical techniques; they learn about the principles and values of these medical institutions in their daily practice. They learn about the perceived value and worth of different populations. They learn that some patients are fair game for practice, while others can be touched only by skilled clinicians and under certain contexts. The body thus becomes a vehicle for personifying skills and articulating practice, ultimately embodying the broader structural forces and political economy of any given place.

The process of crossing boundaries can tell us about hierarchy and position in professional communities of practice. The rank a person has and the type of training they have can determine the boundaries that they can cross. In our research, though interns could cross some boundaries as allowed by their training and by their mentors, more advanced trainees (such as residents) had more leeway for boundary crossing, as they were more practiced in medicine. Physicians could cross many more boundaries, as allowed by their status and authority. Thus, medical students learned not only what their own bodies were meant to do in any given context but also how to use their bodies in these multiple roles while simultaneously being aware of and evaluating the bodies of others.

During embodiment, bodies often incorporate technology and become increasingly skilled and expert; in this process, they become somewhat cyborg (Sharp 2000), a mixture of technological ability and flesh. Thus, we argue, bodies are social objects (Appadurai 1986) that have biographies, become legible, and are invested with social meaning as they use, traverse, transform, and manipulate boundaries. We began this article by asking what social effects practice produces. The practice we have discussed here—of medical students trained to cross boundaries; of conquering their fear, hesitation, or revulsion; and of translating the values of the social body into their practice—shows us the social effects of different care and how value-laden practices are enacted. These social effects can occur faster when people are at the boundaries of their own communities of practice or when they enter other communities in what Wenger (2010, 129) calls “boundary encounters”—like the rotation that Samantha did at a public hospital. Their knowledge and their perceptions of boundaries shift as they acquire direct exposure to new practices, allowing them to recast their own. Thus, the process of crossing social, intimate, structural, and physical boundaries disrupts conventional boundaries of the individual and social bodies.

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NOTES

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1. Smith-Oka was the primary investigator, having done research in these medical settings for more than fifteen years; Marshalla did research on medical care in Puebla in 2014 as a student and later participated as a research assistant in this particular project.
2. All names of institutions and people have been changed for privacy and confidentiality.
3. We were unable to obtain the number of physicians in the public hospital, as this information is protected by Mexican federal privacy laws.
4. The actual number of physicians at Piedad was not easy to come by, as different sources had different information, ranging from the directory at the hospital's entrance that listed names for only thirty-four doctors to the list of 131 names we collected from interns' interviews and social networks.
5. Our data are entirely collected from medical professionals or medical students because in our previous research on health care in Mexico we focused primarily on patient's health care needs, experiences, and stories. Thus, the voices and experiences of providers were lacking, which is why we have focused on them here.
6. In some countries medical students also learn on standardized (or simulated or professional) patients in addition to mannequins (Abdalla 2015; Taylor 2014). This was not common practice in the medical school and hospitals for this research.

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