

Structure and Agency in Medical Case Presentations

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Abstract

This study investigated the role that medical case presentations play in the renegotiation or reconstruction of agency that occurs between medical students and physicians. Medical case presentations perform a dual function in teaching hospitals. They constitute formalized ways that physicians convey complex information about patients, and they are educational vehicles which medical students use to demonstrate their medical problem-solving abilities. This study observed and transcribed 16 oral case presentations performed by third-year medical students in a children's hospital. As part of an interview protocol, two transcripts, one from a less and one from a more expert student, were turned into scripts, dramatized and videotaped. Ten faculty and 11 students were interviewed and asked to identify the differences between a more or less expert student performance. Data were analyzed using modified grounded theory and statistical strategies. Using a combination of dialectical social theories—specifically structuration theories (Giddens and Bourdieu) and activity theory (Vygotsky and Engestrom)-- as well as rhetorical theories of genre (Bazerman, Russell and Schryer), this study concludes that genres such as case presentations function as mediating tools that allow participants to negotiate agency across generations and across levels of expertise as sets of strategic choices. This renegotiation or reconstruction of agency, however, is not unproblematic. Genres have ideological consequences, and, through medical case presentations, medical students are learning to classify in quite specific ways, behaviors that could negatively affect communication with their patients.

Medical student (13): Every time you interview a patient, you're trying to make a movie out of this patient. And so like a story...so she was this this year and that that year, but what really happened in between? So it sort of helped me to be more curious. Cause sometimes you feel like you're invading a person's privacy, but if you look at it that way, like making a movie, you really have to go frame by frame. And it helps you, because if you view it that way, if you roll it out, like roll your interview out like a roll of film, you immediately see what's missing. And you just fill the spots right in...no matter how chaotic you are, you end up filling all the spaces.

Medical student (5): Effective to me means that I actually feel comfortable, when I go home that night, that I've relayed everything that I was told properly to staff...A secondary thing is that , effective for me is showing that I'm effective. Showing that I can take this information in and begin to digest it for the staff. That I'm, you know, about a million steps behind, but on the same path

The voices in these excerpts taken from a study of case presentations conducted by medical students in a children's hospital dramatize contradictory issues related to agency, structure and power. The first voice acknowledges the social power and personal agency that she acquires as she learns how to practice medicine. As a doctor and even as medical student, she can intervene in a "person's privacy." However, as both voices attest, to acquire this power, medical students must follow already established "paths" and tell expected stories. In effect, to be recognized as physicians, medical students must be socialized into the "habitus" (Bourdieu & Wacquant, 1992, pp. 126-28) or ways of perceiving, behaving and communication characteristic of their profession. Consequently, in an apparently contradictory move, to establish their own agency, or their ability to intervene in the world (Giddens, 1984, p. 9), these neophyte practitioners must immerse themselves in the social practices of their discipline.

In this paper we explore this contradiction as it is present in the traditional debate regarding the roles of individual agency and social structures. However, we posit that, particularly in research into professional communication and education, we need models that focus on the dialectical interaction between structure and agency and the mediating tools that professions develop to allow this interaction. In particular, we focus on rhetorical theories of genre as offering a way to conceptualize these mediating tools. In our study,¹ the interactions that occurred between medical students and physicians during the genre of medical case presentation dramatized for us the ways that social agents enact the sometimes conflictual negotiation of agency from one generation to the next. In our view far more is involved in this interaction than just the reconstruction of expertise. Attitudes and perceptions are also embodied, and the genre of case presentations is itself an ideological tool that affects the negotiation.

Case Presentations

Medical professionals use case presentations to communicate the salient details of patient cases to one another. Conducted by physicians for physicians, case presentations occur primarily on hospital rounds and communicate the presenter's argument about what ails the patient and how to address this ailment. As is common with institutional genres, the structural features of the oral presentation are standardized and constitute shared knowledge among users of the genre. In the case presentation, data from the medical interview and physical exam are selected, ordered, inter-related, and emphasized according to medicine's two controlling goals: the identification and the treatment of disease.

Besides being central to the activities of medicine, the case presentation also does double duty as an educational tool. As an educational vehicle, it has a dual role on the threshold of the healthcare community. It is like "a revolving door: both a method of gate keeping—constraining

communicative utterances and sifting out speakers in conflict with community values and goals—and a method of gaining access—generating communication that will succeed in the community and announce the neophyte speaker as kindred” (Lingard, 1998, p. 77).²

Prior to their immersion in the work of the hospital, students are provided with guidelines regarding case presentations. They are instructed that a case presentation must adhere to the following order:

- Chief Complaint (CC)
- History of Present Illness (HPI)
- Past History
- Family History
- Social History
- Physical Exam
- Diagnostic Impression
- Management Plan

They are also provided with detailed instructions about the kind of information required under each heading and have had some experience working with simulated patients, who are actors pretending to have different disease conditions. However, little prepares students for the rhetorical complexity of dealing with patients and reporting on those interactions while knowing that they are being evaluated for the performance of those reports.

Agency and Structure

Agency on the surface seems like an uncomplicated concept—the individual ability to act, to choose or to decide. However, the concept of individual action is caught up in a theoretical and philosophical controversy. The key binary terms in the debate are agency and structure. Agency refers to the capacity for freedom of action in the light of or despite social structures; structure refers to the social forces and constraints that affect so much of our social lives. However, poststructuralists, such as Foucault (1979), and feminist literary theorists, such as Smith (1993), have forever disabused us of not only the possibility of the totally free agent but even of desiring such agency. Smith, reflecting not only Foucault but a history of feminist research, points out that the agent of autobiography, the “I” is based on a notion of individuality that is uniquely Western. Tracing the historical development of the concept of the self, Smith points out its origins in the Renaissance, its ideological commitments to social isolation and pure rationality, and its rejection of the material body and emotions. Speaking of the body/mind dichotomy that underlies the Western concept of self, Smith notes

...this self is conceived to be persistently rational. As such it is an ahistorical or transcendent phenomenon and remains autonomous and free. From this autonomous site the self comes to identify, classify, and know the world in a

monologic engagement that established individual consciousness as the center and origin of meaning (p.7).

Smith asserts, in fact, that the “I”, the totally free agent is a mythic construct and a very dangerous one. Behind the voice of the “I” lies normative assumptions of “race, gender, sexuality, and class identification” (p.10). She asserts, for example, that in the traditional autobiography, the voice of the free agent is white, male and upper class.

However, just as feminist researchers and researchers in professional communication have decried the existence of the totally free agent so they have also challenged the most radical of the structuralist or poststructuralist positions that textual or social structures totally determine all forms of human action. As many feminist scholars have pointed out, it is exceedingly ironic that just as marginalized groups are beginning to articulate their positions, some theorists, notably Foucault, have challenged the very possibility of authorship. Furthermore, some specific organizational studies (Paré, 2002; Schryer, 2000) have noted that workplace writers are not mindless dupes simply filling in the forms of their required texts. Rather workplace communication can be filled with strategic action and even resistance to certain textual requirements. In fact, for many scholars in professional communication, theoretical approaches that focus too heavily on either social structures or personal agency fail to reflect the complex interactions between agents and their workplaces and the mediating tools that communicators use to negotiate this interaction.

Two approaches that do provide ways to conceptualize the interactions of agents and their social contexts include structuration theory and activity theory. Structuration theorists such as Giddens (1984, 1993) and Bourdieu (1992) see agents and social structures as existing in a dialectical relationship and focus on the product of that relationship—social practices. Giddens (1984) observes that “the constitutions of agents and structures are not two independently given sets of phenomena, a dualism, but represent a duality” and that the “structural properties of social systems are both medium and outcome of the practices they recursively organize” (p.25). For Giddens, social structures, such as already existing workplace practices, shape the behavior of workplace participants. In our study, for example, student physicians were expected to relay their medical knowledge regarding their patients using the format of the case presentation and specialized medical terms. However, as Giddens also makes clear, these social practices act as both a resource and constraint for their users, and they can only exist if their users reproduce them. For example, the medical students in our study are faced with a difficult rhetorical situation. They have to present their understanding of a case to medical experts who know far more about medical practice they do. The case presentation format provides them with a known structure that they can deploy to negotiate this situation (a resource) and at the same time excludes perceived non-medical ways of speaking or perceiving (constraints). At the same time, of course, the case presentation as a set of social practices would not continue to exist unless physicians continued to activate it. As Giddens makes clear, it is by acting as an agent, using the organized practices, associated with an organization that one becomes both socialized and an agent capable of intervening in the social world. For researchers in professional communication, Giddens’ perspective explains much of the complexity that they find when they explore actual

communication practices in workplace settings. Yates and Orlikowski (1992), for example, echo Giddens when they observe that “genres can be viewed as social institutions that both shape and are shaped by individuals’ communicative actions” (p. 300).

Bourdieu adds useful dimensions to a dialectical approach to issues of structure and agency. Like Giddens and other dialectical theorists such as Vygotsky, Bourdieu sees the social and the individual as inextricably linked. Like Giddens, Bourdieu sees social structures as powerful, already structured structures that affect social agents. However, he conceptualizes social structures and agency in ways that dramatize clearly the operations of power in organizational contexts. Bourdieu (Bourdieu & Wacquant 1992) offers the dynamic and parallel concepts of social structures as “fields” and agency as “habitus” (pp. 26-28). The concept of ‘field’ or ‘market’ or ‘game’ is his way of conceptualizing disciplines, organizations, or social systems. For Bourdieu, society is not a seamless totality, but rather an “ensemble of relatively autonomous spheres of play” (p. 17). A game, market, or field is a “structured space of positions in which the positions and their interrelations are determined by the distributions of different kinds of resources or capital”— cultural (knowledge), economic (money), social (personal connections) or symbolic (recognition) capital (p. 14). Within fields, agents are struggling to acquire these forms of capital so as to advance their own position. However, agents also struggle to maintain the position of their own fields. For example, traditional medicine struggles to keep “alternative” medical practices outside of the realm of its field and deny such practices any form of currency. Certainly during our study we observed medical students struggling to acquire the ways of speaking and culture capital of their field.

Bourdieu also effectively conceptualizes agency as “habitus.” He observes that “habitus” or individual socialization is “a structuring and structured structure,” that issues out of the “historical work of succeeding generations” (p.139). This on-going structuring process affects both schemas of perception (and thus thought) and actual practices. He asserts that “Far from being the automatic product of a mechanical process, the reproduction of social order accomplishes itself only through the strategies and practices via which agents temporalize themselves ...” (p. 139) Through the case presentation we observed medical students being socialized into the ways of seeing, problem solving and behaving characteristic of medical practice. At the same time we observed that these agents were behaving in definitely strategic ways. They were not simply replicating the structure of the case presentation; rather they were using it as an occasion for regularized improvisations. They were acquiring forms of cultural and symbolic power by their strategic choices, choices that were always limited by the necessity of adjusting their practices to the expectations of their teachers, the attending physicians. In effect, too, these strategic improvisations were also shaping their future actions, their habitus, as future doctors who would certainly treat patients, but might also train another generation of physicians. Agents, thus, are the activators of social structures and they operate through strategies and practices. It is this notion of strategies and a related concept of strategies as networks of regularized improvisations that best describes the kind of agency mediated by genres in workplace environments.

Activity theory and activity system theory provide additional insights to explain the complex, dialectical interaction of agents and their social structures. In its inception in the work of Vygotsky (1978), activity theory emerged as a counterbalance to simplistic notions of socialization which either envisioned individual agents as self-contained pre-formed entities (psychological models) or as entities totally at the mercy of their environments (behaviorist model). Instead, Vygotsky envisioned agents as learning through using tools in purposeful, goal directed activities. He saw that these tools, both physical (hammers, pencils) and cultural (language), pre-exist their users and mediate the interaction between agents and their social environments. By using tools, human agents internalized the values, practices and beliefs associated with their social worlds. At the same time as they become experienced users, agents can, in the midst of purposeful activity, affect their social contexts or even modify their tools. Certainly in our research, we saw that, by using the mediating tool of case presentations, medical students were internalizing the values and practices of medicine while involved in purposeful activities that would lead to their own ability to affect future social contexts i.e., their ability to deal with their own future patients.

In his work, Leont'ev (1978) further refined and operationalized Vygotsky's insights by recognizing that activity itself is a collective phenomena or a system, and as a collective phenomena could be divided into a hierarchy of three levels. He uses the metaphor of the medieval hunt to describe this hierarchy. At the top level is the total activity system itself, the purposeful activity in which all participants engage. The hunt, of course, is the activity system in which all the participants are engaged and which co-ordinates their individual or sub-group actions. Actions are Leont'ev's second level in the hierarchy. Beaters, for example, during a hunt beat the bushes to drive the animals towards the hunters. Their action is purposeful—to drive the animals forward—but is part of a larger system—the hunt itself. Finally, agents also act at the level of operations. These beaters are using tools to make as much noise as possible. To provide another analogy—a truck driver transports goods (activity system) by driving (action) using the gears and steering wheel (operations). In our research medical students were engaging in learning medicine (activity system) through case presentations (action) using specific linguistic choices (operations). Leont'ev also points out that operations become unconscious over time so that drivers, for example, are mostly unaware of the operations of shifting gears or using the steering wheel. However, as Russell (1997b) observes, learning an operation can itself become an action and part of an activity system as in learning how to drive. At this point many of the later unconscious movements and assumptions can be overt. In our teaching hospital setting, medical students were using and learning a new (for them) tool—case presentations. In time, this tool will become part of their professional repertoire and thus the operations of the case presentation will become tacit. However, at this point many of the features of the presentation are foregrounded and far less tacit than they will later become.

Engeström (1987, 1993, and 1999) and other researchers (Cole, 1999; Scribner, 1985; Wertsch, 1981) have extended Vygotsky and Leont'ev's work into a model for the analysis of complex interactions between agents and social structures in professional and workplaces settings. While retaining the concepts of tools mediating the socialization of agents, they have expanded the

analytical concepts within the notion of system to account for more of the dialogical interactions that occur between social agents and between social agents and their settings. Engeström (1993) defines an activity system as a system “that incorporates both the object-oriented productive aspect and the person-oriented communicative aspect of human conduct”, and he suggests that a human activity system, “always contains the subsystems of production, distribution, exchange and consumption (p.67).” His visual model of an activity system shows how multiple participants interactively use mediating instruments or tools such as genres to achieve their goal directed outcomes (1999, p.31).

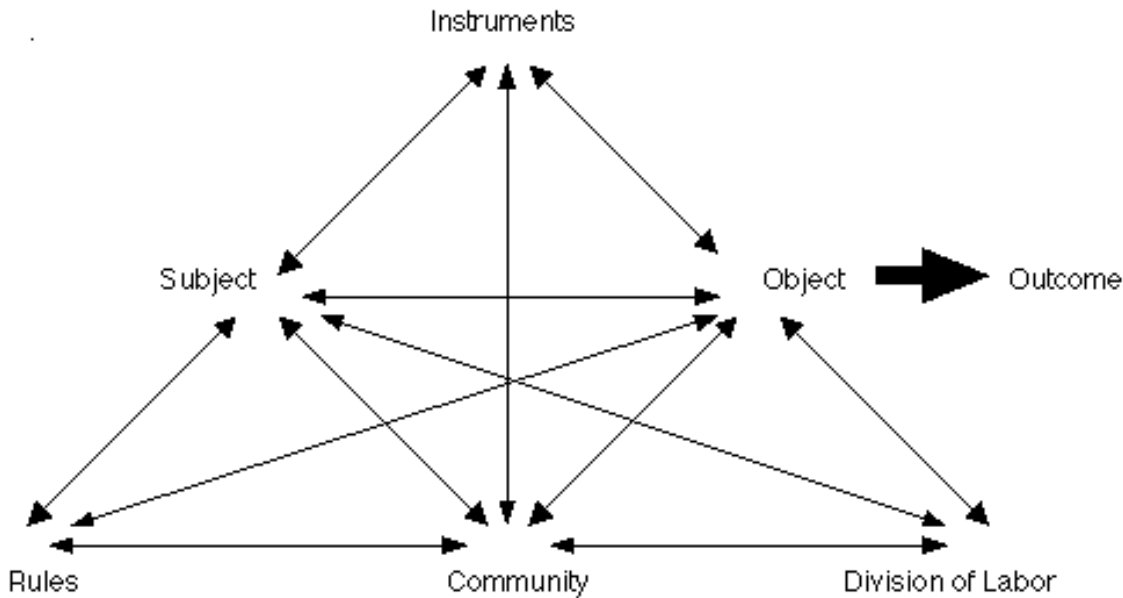


Figure 1. Engeström's (1999, p. 31) model of an activity system

In our research setting, the Subjects are medical students and instructors; the Rules include overt and tacit conventions regarding medical practice and medical presentation techniques; the Community includes medical practitioners, past, present and future; the Division of Labor reflects the different status between physicians and students but also the hierarchy within health care which assigns diagnosis to doctors rather than other medical staff such as nurses; the Mediating Artifact is the case presentation itself, a genre intended to model and demonstrate information gathering and diagnostic techniques; the Object is twofold—the transfer of synthesized information about the patient and the learning of the ability to synthesize and present information; and the Final Outcome includes new intellectual tools for the student as well as patterns of collaboration within the team of medical practitioners.

Furthermore, activity system theorists have developed interesting approaches to help account for change and the ways that agents themselves, after they have internalized their social tools, can affect their social settings. Most workplace settings are characterized by multiple and even overlapping activity settings. As participants in those systems, agents can and often do bring

rules and resources from one system into another and in this way can introduce change or innovation into a system. Furthermore, according to Engeström, activity systems are characterized by contradictions, and change sometimes enters systems because of those contradictions. In his work, for example, on a health clinic, Engeström (1993) noted the internal contradiction that physicians experience as “gatekeepers and cost-efficient producers... and as healers or consultants” (p.72). In our study we noted several contradictory roles: medical students must behave both like students and physicians, a difficult balancing act; physicians must use the case presentation as both a way to collect information about patients and as a way to assess students.

To date, many researchers exploring the interactions of agents in social settings have found activity systems theory illuminating. Engeström (1993) himself has used his theoretical tools to analyse healthcare settings. Hutchins has explored team work in navigation (1993), and much recent work has focussed on explaining technical innovation and change in workplace settings (Engeström,1999; Kuutti, 1999; Capper, 1999).

Genre Research

Researchers in professional writing and genre theorists have also long recognized the mythic dimensions of the totally free agent. Winsor’s (1996) work on the discourse of engineering, Bazerman’s study of scientific discourse (1988), and McCarthy’s (1991) exploration of psychiatric record keeping – all illustrate the way existing discourse practices constrain the organizational and stylistic choices of professionalized writers. It is fair to say, in fact, that most genre researchers have focussed on demonstrating the way contextual and textual structures have influenced writers or agents. Beginning with Miller’s (1984) insight that genres co-ordinate forms of social actions, the rhetorical and North American genre school has done an admirable job demonstrating the way social and contextual structures shape the way writers and readers cope in organizations. Paré & Smart (1994) and Smart (1993), for example, have examined the way existing genres shape the reading strategies of banking executives. And if North American rhetorical genre theorists have focussed on the effect of social, contextual structures, then linguistic-influenced genre researchers have explored the textual structures associated with genres. Swales (1990) and Bhatia (1993), for example, have described the textual features of genres as diverse as scientific articles and international business letters. The intent of much of this research is to reveal often tacit textual structures so that English as a Second Language speakers can access the resources of Western texts.

To a large extent genre researchers have focussed so far on the social structures that influence text production rather than on the complex interactions that occur between agents and between agents and their social settings.

However, recent research has begun to focus on this interaction. Using activity system theory, Dias, Freedman, Medway & Paré (1999) demonstrate that the activity systems and thus genres of schooling and workplaces differ. Reflecting the purposes of schooling, educational genres typically create the circumstances wherein “epistemic” or knowledge-making tasks are evaluated

on an individual basis (p.44). As Dias et al. explain, “Within the classroom context each paper is graded in comparison to all others, and the institution has a vested interest in a quality spread” (p.62). Workplace genres, on the other hand, mediate the interactions of agents in different ways. In workplace settings, for example, managers will intervene in writing processes as “the institutional goal is to elicit the best possible produce from each employee each time writing is undertaken” (p.62). Furthermore, professional and workplace communicators often face political situations wherein they have to juggle competing goals while using proscribed templates. In short, Dias et al. conclude that the activity systems of education and workplaces differ so radically, that educational institutions cannot claim to be teaching workplace communication. However, besides demonstrating the incommensurability of workplace and school activity systems and genres, Dias et al. also document the complex ways that newcomers to an organization interact with social structures through genres and thereby acquire the ability to act within that social setting. In their study of social workers in hospital settings, for example, they note that social workers have to learn the genres of medical practice in order to partially resist them.

Building on previous work in genre and activity systems theory, Bazerman and Russell have also contributed important insights into the interactions between agency and social structures. Bazerman (1994) has noted that genres are, in fact, parts of interrelated systems that connect the past to the future. So, for example, in our study, the medical students interviewed patients (a highly regulated event), consulted files, and transferred information to notes and to patient records. As a result of their case presentation, patient records might be adjusted, consultation letters or phone calls might ensue and the students themselves would receive a mark on their transcripts—all generic events. Bazerman (2002), like Bourdieu, notes that participation in these genre events is identity or habitus forming. As he observes, “genre shapes intentions, motives, expectations, attention, perception, affect, and interpretive frame. It brings to bear in the local moment more generally available ideas, knowledge, institutions and structures that we recognize as germane to the activity of the genre” (p.14). In his major studies, Bazerman (1988, 1999) focuses on how well-placed, expert users (Newton, Edison) develop a self-conscious sense of agency as they manipulate the genre systems that shape them.

Russell, on the other hand, focuses on the difficult balancing act that newcomers face as they appropriate what are, to them, new genres. Using activity and genre research, he suggests genres “help mediate the actions of individuals with others in collectives (activity systems) to create stabilized-for-now structures of action and identity” (1997b, p.514). Russell demonstrates the “double bind” (p.533) that students face. Professional identities and forms of agencies are woven into genres such as the case presentation, and yet to write or speak those genres students must eschew other ways of speaking that might seem more comfortable or familiar to them. As Russell (1997a) acknowledges, “Agency is distributed in streams of activity as participants appropriate voices in the networks of disciplinary practice” (p.230). Some students (see Casanave 1992) may even resist the voices and ideological positions of the genre they are being asked to assume and thus refuse the agency the genre affords them. However, Russell points out that genres are not monolithic structures: they are not totally predictive. Rather, quoting Schryer

(1993), he notes these mediating tools are only “stabilized-for-now” and, in fact, are reproduced by their users using a range of operations to accomplish the goals of the activity. Because they are involved in multiple activity systems, users can bring over resources from one system to another although, as Russell notes, this kind of innovation rarely happens when newcomers are appropriating a new genre. In fact, observing a genre being internalized can provide researchers with an opportunity to see the internal workings of a generic situation (Russell, 1997 b, p. 515). At this point, the identity expectations built into the genre and users’ strategic choices become far more overt and open to scrutiny. Once these expectations and choices become operationalized and part of their users’ common sense they will become tacit and hard to access. In our study, for example, most of the physicians we interviewed could not remember ever having learned how to do case presentations although they viewed presentations as an important part of their daily practice as physicians.

These dialectical theories of structuration, activity and genre form the theoretical background to our study of the appropriation and internalization of the genre of case presentation by medical students. Like Giddens and Bourdieu, we saw that students and the attending physicians were accessing a range of strategies as they together negotiated this event called, the case presentation. We noted as well that these events were regularized, that is, that these social actors were enacting both tacitly and overtly some regularly occurring features. Their behavior was being structured. At the same time we observed that these agents were acting strategically and improvisational. Their choices were never entirely predictable. They were acting as agents within the confines of the resources and constraints of the genre although physicians had obviously more access to agency than did students. We noted, too, the implications for students of acquiring the habitus or identity of physicians. They were acquiring one of the genres of medical practice, a genre that would endow them with future agency—the power to intercede in people’s lives – and yet the path to that agency required them to negotiate a series of contradictions. We saw them trying to balance the contradictory demands of two activity systems—one dedicated to the future--medical practice-- and the other to the present and the past--schooling. In our view the genre of case presentations operated as a mediating tool that helped these students and their instructors traverse a deeply problematic and contradictory phenomena – the renegotiation of agency between generations. We saw, as well, that in this renegotiation certain often contradictory ideological positions were being reconstructed that the medical practitioners themselves might want to question and challenge.

The Study

The study itself consisted of a multi-disciplinary, research program investigating the role of case presentation in the socialization of the healthcare professional. The study explores: 1) How novices learn the strategies associated with the situated language practice of case presentation and 2) How this language acquisition shapes novices’ developing “habitus” or professional identities.³

Setting

The study was conducted within the context of the third-year pediatric clerkship at an urban teaching hospital. The 3-week inpatient component of the clerkship involves students in patient care activities where students function as part of a medical team consisting of a faculty pediatrician, a senior (third year) resident, a junior (first year) resident, and 1-3 other students.⁴ Students are responsible for admitting a new patient to the ward every 3-4 days on their “call” shifts, when they remain in hospital overnight. The students interview and examine the patient and present their findings via case presentations to the pediatrician or the team the next day on “rounds”, which usually occur at the nurse’s station, in the hallway outside the patient’s room, or in a small conference room.

Data Collection

Data were collected in two phases: field observations and interviews.

Phase 1- Field observations: After the project received ethics clearance, 11 students and 10 faculty participated in the observational phase of the study. Students included 5 women and 6 men, while faculty included 5 women and 5 men. Nineteen oral case presentations and the teaching exchanges related to them were observed and audio-recorded. Transcriptions were rendered anonymous, resulting in 380 pages of teaching exchanges regarding case presentation.

Phase 2- Interviews: Eleven students and 10 faculty were interviewed (most interview participants overlapped with observational participants). A 45-minute interview script was developed during the analysis of observational data. The script consisted of open-ended questions about the nature and purpose of case presentation in the clerkship, as well as two video clips of representative case presentations based on those observed during phase one of the study. The two presentations were by the same student with different faculty: an early, flawed attempt and a later, more sophisticated attempt. Chosen for their representation of various student strategies and faculty responses, these presentations were dramatized with gender and age altered to minimize the possibility of recognition by participants (see *Less Expert and More Expert Videos*). Interview respondents were asked to comment on the strategies used by both the student presenter and the faculty teacher in the videos. Interviews were transcribed and rendered anonymous, yielding 175 pages of textual material for analysis.⁵

Data Analysis

Data analyses involved modified grounded theory⁶ and statistical strategies. Using a grounded theory approach, observation transcripts were individually read by four researchers for emergent themes, and discussions were convened to develop, apply, revise, and confirm a coding structure. One researcher applied the coding structures to the complete data sets using NVivo qualitative data analysis software, returning to the group at regular intervals to report on difficulties or emerging patterns in the computer analysis.

In order to conduct non-parametric and parametric statistical analyses⁷ of the case presentations, word counts of the 16 case presentations were conducted. All words were counted except those spoken by or to the observer about the project, words identifying speakers, and words added by the transcriber (e.g. loud beep in background). Non-parametric analyses (Kruskal Wallis & Wilcoxon) were conducted of the overall number of words spoken by three groups – Students, Doctors and Others (residents, other students etc). For each transcript, the total number of words spoken was divided by 4, and the number of words attributed to each of the three groups was then tracked in each quartile. Parametric analysis (Greenhouse-Geisser) was conducted to compare the group word counts across and between the four quartiles.

Results and Discussion

I. The Case for Regularized Interaction

At one level, the case presentations that we observed provided evidence of the effects of social structures as they all enacted a carefully regularized interaction between the students and their doctor/mentors. We noted two patterns of regulation.

A. Pattern One: Case Format

Most of the case presentations followed the normal organization of history, followed by physical exam results, followed by a discussion of possible diagnoses and case management. Students who did not fill in or follow the pattern were reprimanded or required to fill in the missing information. In the following excerpt, for example, the student attempts to move from presenting case history to presenting lab results but is stopped by the doctor because the student has failed to provide a full history.

S6. He was well after discharge for 5 days. Then he started having vomiting once a day until October 12, which was yesterday, where he vomited 3 times in one afternoon, and he seemed to have a fever.... So they returned to the hospital ER. In the emergency room, he was afebrile, he wasn't toxic, he was well looking, and he had normal labs, except for the following: he had an increase in...

Dr3: Sorry, ...Let's just maybe stop there. Just in terms of anything else in this past history that we want to know, and then we'll hear what his labs were. That's when we'll say what we think is going on and what we would do if we're seeing him for the first time. Ok? So tell me the rest of his story. Is there anything else? You mentioned something about his development.

The interviews from both the students and doctors emphasized the importance of attending to organization or “flow.” During the interviews we showed participants video tapes of simulated case presentations, based on some of the actual case presentations that we observed (see *Less Expert Video* and *More Expert Video*),⁸ and asked them to comment on the strategies used by both students and doctors. Upon viewing the two simulated case presentations during the interview phase of the study, Doctor 7 commented on the “less expert” case: “So he's trying to

organize it in a certain way, but he's not really doing it in a proper and full way. I think...he's jumping from one thing to another too quickly." Another doctor, Doctor 9, also critiqued the less expert case presentation for its failure to attend to organization. He noted that, although the student clearly knew the overall form of the case presentation, his organization within sections was at fault. He observed, "I find his (the student's) presentation of the current illness disorganized, speedy." Most of the doctors⁹ interviewed agreed that one of the salient reasons that the more expert case presentation impressed them was that the student had a better command of the organizational structure of case presentations. As Doctor 7 explained, referring to the more expert student, "This person seemed to be a bit more organized or a bit more knowledgeable of what he's going to present, so it come across. And the time frame, it is easier to understand what's going on with this child in terms of the history." Doctor 11 concurred noting that the more expert student was better organized and following a "template."

Students also recognized the importance of the case presentation structure. All could list the expected structure. As student 2 observed, "We sort of learn the general approach of...identifying the patient, chief complaint, history of present illness, past medical history, social history et cetera, et cetera." They also shared with physicians an understanding of the purpose of the structure. The same student explained, "It just sort of helps you to organize your thoughts better... to make a story of what might seem like sort of a chaotic bunch of events. Because without a structure, it's really hard to make sense of anything." All the students confirmed our judgment that the "more expert" video, in fact, represented a more expert performance of a case presentation. Most mentioned that one of the most salient differences was that the more expert case was characterized by "flow" (Students 2, 8,10,11,14) and an attention to organization (Students 2, 7, 8,11,13,14).

Consequently, we have here an example of an overt, recognizable discourse structure that students are expected to appropriate and use. It is clear, too, that, although the students recognize the constraints of the structure, they also see those constraints as guiding their performance. The organization in fact helps them generate their cases and keep them on track. It functions as both a constraint and a resource.

B. Pattern Two: Control of Time

As we observed a number of case presentations, we noted several other more tacit patterns of regularized interaction between the presenting students and the mentoring doctors. The following graph (see Figure 2), the result of a word count across 16 transcripts (see Appendix A for actual numerical results), visually represents the average amount of time students, physicians, and others actually occupied during case presentations. As the results suggest, students and doctors control about equal amounts of time (as measured by number of words).

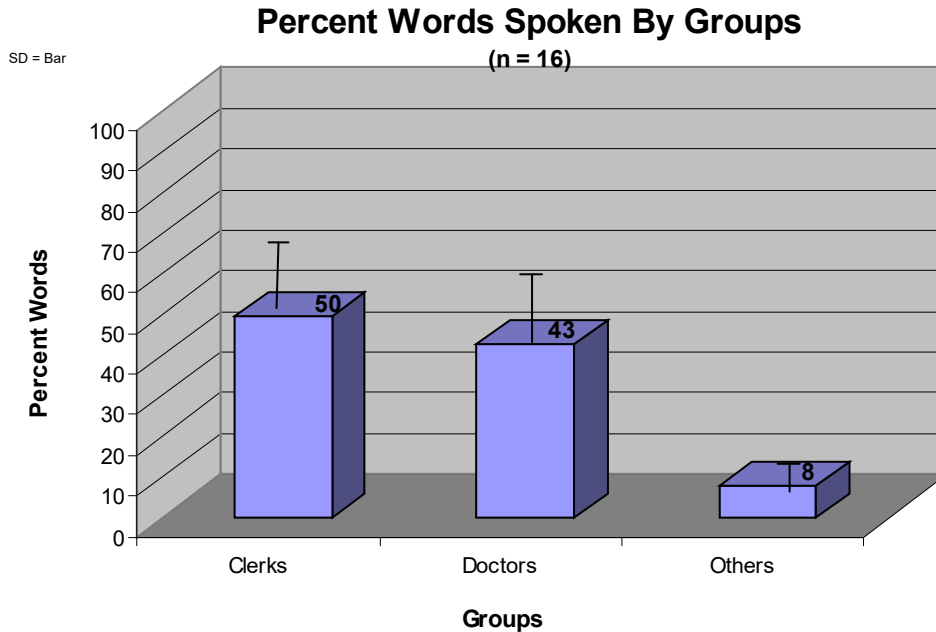


Figure 2. Percent words spoken by doctors, students (clerks) and others during case presentations

Neither students nor the attending physicians expressed awareness of this regular pattern, a pattern that perhaps reflects the fact that this genre mediates two activity systems—one dedicated to education and the other to medical practices.

However, a closer look at the interplay between students and doctors reveals an even more interesting pattern. In our numerical analysis we divided each case presentation into 4 equal quartiles. To a large extent these quartiles correspond to the organizational structure of the case presentation. So, for example, the first two quartiles tend to correspond with time devoted to providing the history and physical exam results of the patient, while the last two quartiles overlap with discussions regarding possible diagnoses and case management. As the following graph (see Figure 3) indicates, from an external perspective, case presentations have an almost dance-like regularity. The students, on average, speak most in the first quartile (~80%) and less each successive quartile to a low of ~27% in the final quartile. The doctors, on the other hand, speak ~20% of the words in the first quartile and increasingly more in successive quartiles to a high of ~60% in the final quartile. According to the Greenhouse Geisser Test, this pattern of interaction is statistically significant in two ways. Each group changes significantly across the quartiles. In addition, the quartile changes vary significantly among the groups (see Appendix B).

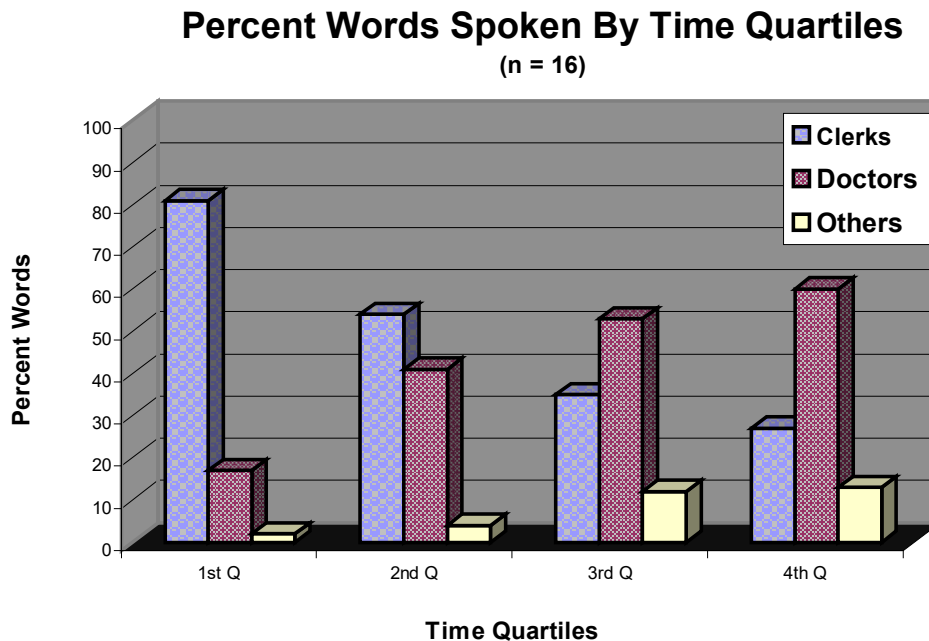


Figure 3. Percentage of words spoken by students (clerks), doctors and others across the 4 quartiles of case presentations. Fi

This graph suggests that students do, in fact, begin with control over the case presentation when they are presenting information about history or physical exam results, but they appear to lose actual “air” time (as defined by number of words spoken) to doctors when the more difficult diagnostic and case management work tends to occur. Again, this division of time/ space might be entirely appropriate for a situation controlled by an apprenticeship genre wherein students are learning difficult diagnostic tasks.

These results help illustrate the highly regularized nature of case presentations. The genre expectations of both presenters and receivers appear to co-ordinate the organization of complex patterns of information and the actual division of time/ space or agency between the participants. These participants appear to self-regulate; the social structures woven into the genre seem to create patterns of regularized activity.

II. The Case for Strategic Action

Besides being sites of regularization, case presentations are sites of strategic action on the part of both instructors and students. The “air” time occupied by instructors was filled by a host of teaching and learning strategies. From an activity systems perspective these “strategies” help to operationalize the activity of the case presentation. Some of the most prevalent teaching strategies included “modeling language”, “quizzing”, “pointing to an absence” and “pet topics”. The following chart defines each strategy and offers an illustrative example. Each of these strategies occurs numerous times throughout the transcripts.

A. Instructor Strategies

Strategy	Definition	Examples
Modeling Language	Instructor provides student with required, specific terms	Dr 10: So what you might say, then when they saw her in the emergency room was that she was in "moderate respiratory distress." Student 10: Right
Quizzing	Short bursts of questions designed to see if student has specific knowledge	Dr 8: Okay, so there—there are the first generations, and the big second generation we use is cepheroxin. And we talked about this the other day. What does cepheroxin do better than..? Student 7: What does it..? Dr 8: Do better than? Student: Do better..? Dr 8: Than-why did you choose cepheroxin for this boy, rather than, um ceph(?) Student: It's ...the..coverage ...of (pause) staph? Dr 8: No actually, enceph and cephalin and keflex have very good, um, good staph coverage. Student: It's h-flu? Dr 8: It's h-flu. Right.
Pointing to an Absence	Instructor notes missing information	Dr 7: Now why did they do a liver function? Student 8: He had a full septic workup. Dr 7: Yes, but—but why? Was this child so ill-looking? Did he have metagismis? He wasn't that febrile. So what was the reason for the liver function? Student: Don't know.
Pet Topic	Instructor launches into a long digression which may or may not be directly relevant to the case.	Dr 7: The smoking, not only for asthma, but also for recurring otitis media, it's a major factor. So you always have to ask if the Parents smoke in the car. They say they don't smoke in the house. They smoke on the balcony of the apartment, and the smoke will come inside. They say they smoke in the basement, but not upstairs. None of it is acceptable.

From the attending physician's perspective, these interventions into the case presentation are necessary. They are charged with the joint task of ensuring that patients are receiving good care and that students are acquiring their professional skills. However, from the student's perspective

these interventions were, in fact, possibly necessary but certainly interruptive. Such interruptions rarely occur during a case presentation conducted between practicing physicians. Of course, practicing physicians do interrupt each other's case presentation but for different reasons. They might want clarification on a certain disease condition, but they would not interrupt each other to check on the knowledge basis of the presenter (unless something happened to challenge the ethos of the presenter such as the presence of a consultant with specialized knowledge).

Attitudes towards interruptions differed between the students and the attending doctors. The students, as revealed in the interviews, had a complex attitude towards interruptions. During the interviews we asked the students to describe the features of an effective versus an ineffective case presentation. All the students mentioned that they knew they were doing an ineffective case presentation if the attending physician interrupted frequently to ask for more information or for clarification, especially early in the presentation. As one student (C8) explained:

Certainly if you are interrupted in the first couple of sentences, then it's a bad sign. If they ask you for details that you didn't already ask, then that means that you didn't cover something that was obviously important to the supervisor. And...if you're also, if you're interrupted—anytime you're interrupted you probably are giving information that's not pertinent to the situation, or the supervisor, or supervisors, are bored.

Several of the students also mentioned that they knew they were doing a good job if their presentation received the right kind of interruptions. Towards the end of a presentation, if an instructor begins asking questions that go beyond the case and a discussion ensues, then the student can interpret this interruption as evidence that he or she had wielded the genre effectively. As student 13 explained, "So if you, if you can really get a good discussion about management, that's sort of beyond the case...then you know you've done a good job."

During the interviews, the attending doctors rarely, if ever, mentioned interruptions as a characteristic of ineffective case presentations. Only after watching the videos of the "less expert" and "more expert" case presentations, did they talk about the kinds of interruptions that occurred on the videos, and they did not arrive at any consensus regarding strategies for interrupting students. Several mentioned that they tended to wait until appropriate times to interrupt (usually between sections of the case presentation); while others thought it was important to stop presentations as soon as they went off track. However, it is unlikely that the physicians view interruptions in the same negative light as students. The students clearly see interruptions as sites of evaluation and signs of failure whereas instructors see them most often as teaching instances.

These contradictory perceptions reflect perhaps the two activity systems at work here, the fact that this one genre is mediating the work of teaching and medical practice. However, this data also indicate that students view interruptions as possible challenges to their attempts to develop a sense of agency or control over presenting cases. They know they have mastered the medical voice when either they are not interrupted or the interruptions occur for the right reasons.

B. Student Strategies

The students find themselves in a contradictory situation. They are quasi-responsible for patient care and thus neophyte physicians, and they are also students who are being evaluated for their skills. Most importantly, they must use the same genre to demonstrate their abilities as both student and physician. In fact, in our data we noted two sets of strategies that students tended to enact during case presentations: One set reflected their status as students and the other their emerging status as physicians. We called one set of strategies Strategizing as a Student and the other Strategizing as a Student/Doctor (see also Lingard, Garwood, Schryer & Spafford, 2002). The following set of strategies includes the kinds of actions or agency that students deploy in response to the evaluation activity present in their case presentations.

1. Strategizing as a Student

Strategy	Definition	Example
Proving Competence	The student attempts to prove his or her expertise through detailed knowledge or through reference to research.	<p>Dr.5: Why did you treat the fever? Are we treating her? Or are we treating the family?</p> <p>Student 5: I guess I was worried about giving extra medication and side effects. I know that ... in terms, of, uh, fever management ...um.. with the exception of very high fevers. I don't think there's any risk to the child, unless they have a history of febrile convulsions, or lower seizure threshold...So, it's for comfort...and so that she can sleep, and so that she can actually get the proper intake and eat and drink...Um...I know there's a big debate over suppressing fever. I know there's issues with... the sort of telos of doing that.</p>
Seeking Guidance	The student seeks direction or permission to continue.	<p>Student 6: That was just in terms of the development of it. Um, I don't know if you wanted to know anything else associated with vomiting. Or if you want to stick with developmental.</p> <p>Dr 3: No, no, tell me whatever else you think is important.</p>
Deflection Self-defense or Pre-emptive	The student seems to feel under attack and either reacts to defend himself or herself or sees the attack coming and wards it off.	<p><i>Self -Defense</i></p> <p>Dr 5: And they determined that she had ARDS, is that what you said?</p> <p>Student 5: Oh, that's what...I guess it would be, um, infant respiratory distress.</p> <p>Dr 5. What did you mean by—you said—if I'm correct—what did you mean by ARDS?</p> <p>Student 5: That she had to have cerfactin, so</p>

		<p>she had to be intubated. She had acute respiratory distress. I didn't mean adult...</p> <p><i>Pre-emptive</i></p> <p>Student 6: There were no pregnancy complications with X. He was a C-section delivery, he was a little less or above 5 lbs. and he was at term. So, a little underweight but at term. Um, something that I actually should have asked about more about, because she said that he apparently had jaundice after he was born.</p>
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As experts, practicing physicians would rarely feel the need to use this range of strategies as their competence seldom explicitly comes into question. However, students are highly aware that they are being assessed and evaluated. In the interviews, all students were asked what they considered the purpose of case presentations. All mentioned the important role that case presentations played in terms of processing and transferring knowledge about a patient, but all were also intensely aware of themselves as novices being evaluated through their case presentations. One student (C 11) noted that, “Clearly, the purpose of these presentations, for the student, I think, is simply to show off, whether he can—he or she can look good. And do well, and, uh, you know, get a good mark or whatever.” Students knew too that they needed to achieve a good evaluation they had to prove their competence by demonstrating their effectiveness and defending themselves.

One student (C 5) reported:

Effective to me means that I actually feel comfortable, when I go home that night, that I've relayed everything that I was told properly to staff...A secondary thing is that , effective for me is showing that I'm effective. Showing that I can take this information in and begin to digest it for the staff. That I'm, you know, about a million steps behind, but on the same path...

This student's last comment—their recognition that they are “about a million steps behind, but on the same path” – clearly indexes the student's acknowledgement of the kind of student-shaped agency he or she can safely assume. As another student (C7) put it, students had to demonstrate confidence but without being “confrontational.” In preparing for their case presentations, students also indicated that they were well aware of the defensive strategies that they would need. In talking about her most effective case presentation of the term, one student (C5) observed:

It (the case presentation) was a child who had, um, chronic asthma...And I had done a lot reading, and I had also spent an extensive amount of time with the family. I had taken a history over two hours...Um, so I'd spent enough time to have answers for basically any peripheral question about where they worked, lived; details about whether there were carpets in the

home...And then I'd gone and done some reading. And I, just remember every question that I was asked, I had an answer that I could defend. I was challenged, and I could defend it. We went in (to the patient's room), the findings were as I said, and...we left the room and there was just the sense of, wow, you know, nothing more to that than what she (the student) said.

In preparation for her evaluation the student is deploying the successful student strategies of proving competence and pre-emptive deflection. As other student and faculty commentary indicated, the reactive self-defense is a less successful strategy. When we played sections of re-enacted case presentations for faculty and students, the "less expert" video showed the student defensively responding to the attending physician's comments about his use of terminology. Some students viewed this scene as confrontational and several observed that the student should have just acknowledged what he did not know. One student (C13) stated that she had learned "not to bluff, but to say I know this much, and set the limit." This student has, in fact, learned an important form of agency suitable for the student role that she must perform.

2. Strategizing as Student/Doctor

Besides being students, these students are also moving along the path towards being doctors. As one student (C5) explained, her ambition at this point in her career was to be "a competent student doctor". In our transcripts we identified a series of strategies that attending physicians used and encouraged students to use.

Strategy	Definition	Example
Summarizing	A summary of the important details of case. Summaries can occur between the major sections of a case or towards the conclusion.	Student 7: So in summary, he's a 5-year old boy with a previous pneumonia, a 7-day history of fever and right orbital pain, erythema, photophobia and swelling. Dr 8. Anyone have...Are there any questions? Anything we didn't cover?
Relevance	The presenter knows what is relevant to a case, both the pertinent positives and the pertinent negatives.	Dr.8: Well let's just be clear. Venous gas, don't even look at the PO2 measurement. It's not relevant—they'll give you a range... Student 10: Oh, okay Dr 8: It's not important. It's not important...that's not the correct word. Intern 1: (interrupts): Relevant Intern 2: (interrupts): Giving any information. Dr 8: It's not relevant. It's not giving you any information.
Controlling Turns	The presenter controls the pace of the presentation by	Student 2: And, uh, family history. The, uh, father is a university professor, and the mother is an ophthalmologist. And both of

	moving from one section of the case presentation to the next with little interruption.	<p>them are in good health , uh, and they both live in the downtown area in an apartment. And there's a sister of 3 years of age, who is also in good health.</p> <p>Dr 1: Good</p> <p>Student 2: And, uh, sleep history. Uh, 17 to 20 hours of sleep per day. Which seems pretty normal. Social history. Basically the only thing worth mentioning is uh her sister goes to daycare for half a day, uh, each day and uh, they're not aware of the health of any of the other children at the day care...</p> <p>Dr.1. Okay.</p>
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a. Summary Strategies

Summaries occur at different levels of the case presentation and demonstrate the kinds of contradictions that students must negotiate in order to assume the agency associated with medical practice. In their commentary, both students and doctors talked about the ability to move into swift, accurate summaries at various levels of the case presentation. At an advanced level, the entire case presentation is a summary of a patient's condition. As one Doctor (10) explained, part of her training included learning how to do the three-line presentation. In her view, students should be aiming towards the three-line presentation. She observed, "And that's what people are trying to because...that's the way I communicate with my colleagues, that's what you need to get to." However, this type of summary is extraordinarily difficult for students to accomplish, especially if the case is complex. The three-sentence summary assumes that students can figure out the whole story of the case, and they often do not have the expertise to do so. In fact, students are often caught in a dilemma when presenting cases. They are frequently told "not to focus too soon" (Doctor 5) in presenting possible diagnoses of their case. At the same time, they are advised to present only "relevant" information. Knowing what is relevant depends greatly on the student's ability to guess the possible diagnoses of a case. The ability to produce the three sentence summary depends on the experience of having handled and presented a large number of cases and therefore having better prediction strategies on hand.

Students, however, could be expected to try their hand at summaries at various locations in the case presentation. Several of the attending doctors (e.g., Doctors 5 and 11) noted that they wanted the case to begin with a concise synopsis of the problem. Doctor 10 observed that he wanted cases to conclude with summaries that stated something like "so I think that this patient has this, because of this, but it could be that." Students also recognized the importance of doing summaries during a case. For instance, in discussing the video of the effective case presentation shown during the interview, one student (13) observed that the effective case presenter provided brief summaries at the end of each mini-section. She explained, "Because sometimes if you throw details at people, they don't have a whole picture, and you just sort of need to wrap that up for them at the end."

However, both doctors and students recognized the difficulty of the summary and acknowledged that students could only try their hands at summaries and should not expect success. One student, when asked to explain why residents (more advanced learners) performed excellent case presentations, answered, “Because they know what is relevant.” In other words, right from the beginning, the student has to pick out the salient details from a patient’s case and shape them into an account that convinces the attending doctor that the student has a strong sense or “impression” of the possible diagnoses. As one doctor explained:

It’s cause they are so junior that they have no experience, and they don’t know – it’s a very challenging thing too. They don’t know the differential diagnosis. So it’s very hard to ask questions to rule in, rule out different things. And you know, I would say also just a summary at the end, and an impression—I mean, that’s another important thing, so obviously a lot of students do not do that. So they finish off, and then, to summarize, they say, so I think this patient has this, because of this, but it could be that. But I would say most students don’t do that, I think they are probably afraid ...some of them had no impression.

From the students’ perspective, the summary is a seemingly simple yet complex strategy. To really provide summaries they must have a strong sense of the possible diagnoses. Yet they lack the necessary experience. However, the students who are advanced in their socialization do figure out this strategy of creating the “impression” that they have a strong sense of the possible diagnoses. Often too they create this impression through a great deal of behind the scenes work wherein they consult research sources and confer with the resident interns in their teams. As students, they are rarely encouraged to arrive at swift diagnoses but their summaries depend on conveying a sense that they could arrive at a reasonable range of diagnoses, and they need this range to make their summaries coherent and convincing. These results speak to the complex and even contradictory tactics that students must use to negotiate the recognition of their agency not just as students but as medical practitioners.

b. Relevance Strategies

The ability to develop convincing summaries includes the strategy of recognizing pertinent positives and pertinent negatives. Pertinent positives refer to relevant positive information about a patient such as the presence of fever or a cough; pertinent negatives refer to the salient absence of symptoms or findings. For example, the absence of a rash could be significant. In almost every case presentation we heard the attending doctors calling for “just the positives” or just the “significant negatives” or just the “pertinent findings.”¹⁰ Consequently during the interviews we asked both doctors and student what this command meant. Students clearly understood the meaning of the command. As one student (C5) explained,

If it’s pertinently not there—in the—in the case of someone who’s got a cough, if their chest is clear, that’s pertinent. In the case of someone who’s had a fever and night sweats, if they do have swollen lymph nodes, that’s a pertinent positive.

Both students and attending doctors also understood the intent of the strategy. As one doctor (8) explained the command, it meant, “Everyone’s getting exhausted, you’re being way too comprehensive, and we do need to push you to learn to be concise.” However, learning how to be concise is more difficult than it seems because again being concise means having a felt sense of what is relevant to the case. As another doctor (5) notes regarding the command, “And I think, what you’re trying to tell people in that term, is don’t give a lot of unnecessary details if it’s not going to add to the story.” Students, however, are keenly aware of the contradiction that they often do not know what is relevant or what is unnecessary. As another student (16) noted, knowing what is relevant comes

with experience, because...as every chief complaint and situation has certain things that you want to focus on...And certainly as we’re going through studentship, there are certain pediatric problems or certain surgical problems we haven’t been exposed to and we don’t know what are the pertinent positive and negatives and we learn that.

The complex and contradictory strategies that students must deploy to convince their evaluators that they are effective student/ doctors are evident in the following exchange between a student (11) and one of the researchers. The researcher has just asked him to explain how students cope with the command “not to focus too soon” or to arrive too quickly at a diagnosis. He explains that by requesting that students not focus too soon, attending physicians mean the following:

Student 11. Tell us the story in an unbiased manner, including all the pertinent positives and negatives, without keeping the known diagnosis, or the working diagnosis in mind. Unbiased....and uh, filter out the time-wasting—parts of the story. And so basically, just tell us what we need to know to make an accurate diagnosis.

Interviewer: Okay. And when you’re doing that filtering,...what’s the process like in your mind. Like, how do you do that—how do you filter?

Student: With a diagnosis in mind, try and recall the things that are necessary to make the diagnosis. So the points, of the part of an illness that have these...things, positive or negative aspects to the disease. And so thinking about those, you think, well does the patient actually have these characteristics, rather than what does the patient have.

This excerpt reveals a clear contraction—the student knows that he must present in an unbiased manner but that he must also have a diagnosis in mind that will help him filter or bias his report. Our data does not reveal whether students are conscious of this contradiction or not. But savvy students appear to have figured out that they must have a defined range of possible diagnoses in mind even though they cannot come right out and state them, especially at the beginning of the presentation.¹¹ As another student (14) put it, focusing too soon could lead the doctor astray and the student could be accused of “editorializing” or interpreting the data. At the same time, students should have a range of diagnoses ready to frame their presentation. Otherwise the story they are telling would not make sense; it would not be leading in any particular direction, and they could not make on the spot judgments about what information is relevant or not. This same

student succinctly described the difference between an effective and ineffective student case presentation.

So...if the person came in with chest pain—now I pretty much think this is a heart issue. I think that—and they're having a heart attack, we should probably do an EKG, we need enzymes—well, that's not history. The history is, the patient had chest pain for 24 hours, they had shortness of breath...and then you with that information, in your impression and plan, you can say, this sounds to me like a heart thing. At the end, after you've done the case presentation.

The agency that students have in this situation is constrained but real and filled with strategic action. They have to frame the case in such a way that their listeners know that the student has a good idea as to what the range of diagnoses could be but they must hold off on their tentative conclusions until they have presented all the relevant information and explored all potential possibilities.

c. Controlling Turns

From the students' perspective, it is important to move through the case presentation as quickly, efficiently and effectively as possible as they view most interruptions as expressions of negative evaluation. The obvious place for interruptions occurs between the sections of the case presentation. If a student has not organized his or her case effectively or has not conveyed an impression of knowing the relevant information, they will be stopped and questioned or be required to redo a section of the case. These interventions slow down the case and can cause tension for all involved. In our observations we noted that some students consistently announced the next section of the case presentation and then attempted to move swiftly into that section. In the following excerpt, for example, the student announces that she is moving into a description of a child's social development (a sub-section of the physical exam), completes that section, and then attempts to move into the next section but is stopped by the attending physician. Throughout the transcripts we noted this ongoing tension over control of turns between students and their instructors.

S.5. ...The review of systems was unremarkable, with the exception of tubes in both ears, which I think one side has fallen out and one side has loosened. I discussed that a lot with her mother, Ok, so general description---

Dr.7. One sec. before you go on to the physical exam, what other questions did you ask since this child has asthma? What are the pertinent things--

Throughout the presentations students repeatedly announced where they were in the narrative of the case presentation. Those who could use effectively the strategies associated with case presentations such as summarizing and having a felt sense of relevancy could sound and behave more like physicians. As they acquired this habitus, they could speed up the case and control more often the transition from one section to another. In other words, as they began to sound like medical practitioners, the interruptions changed in number and quality.

III. The Case for Improvisation

Besides being regularized events that co-ordinate the strategic actions of both instructors and students, there is no doubt that the participants in this genre are also improvising as they move through the turns of the case presentation. In their interviews,

students mentioned that, although they acknowledged the necessity of the case presentation structure, they actually adjusted that structure according to the rotation, the setting and the instructor they were facing. Most students reported that they watched closely the doctor who was evaluating them and adjusted their presentation accordingly. One student (7) noted that when she noticed the attending physician getting bored or impatient she had a range of improvisational strategies at hand. She would interrupt her presentation and ask whether they wanted to keep hearing about a particular problem or she would move onto something else or she would refocus the story or summarize it on the spot. Other students kept track of physician expectations. Student 5 reported that:

Some staff are very into the psychosocial context of the patient—the patient as a whole person. “Did you ask about how mom’s paying for parking? About how Dad’s, uh, you know, coping with missing work?...You tend to sort of mirror what they want. And I think you can do that, within limits. But it depends on how quick you catch on.

Interviewer: And what in your view are the features of an effective presentation?

Student 9: I guess it depends on who you’re presenting to. For example, for internal medicine, morning report, you have to present it in a different way than if you’re the emerg physician transferring a patient over. ...So if it’s like morning report, for example, well you’d say, “I have a 41 year old man, presenting with abdominal pain”. So that’s how you’d it for morning report, because it’s more of a teaching kind of presentation. Versus if you were the emerg physician, you’d like “I have a 41 year old man, with suspected triple A”. So you’d give the diagnosis right way, and it’s just very pertinent facts. Well, for other things, you’d present more detail. So it depends on the scenario.

Several students noted that they adjusted their presentations according to the rotation. In this excerpt we hear a very savvy student explaining his reporting practices to the interviewer.

This student has obviously figured out the importance of context in terms of selecting his reporting style. He knows when to report more like a physician and when to report more like a student/physician. The student physician has to structure the story as if he or she does not know the diagnosis and is providing a full, unbiased account that culminates in a diagnosis or differential diagnosis. The student faces two challenges. Choosing the data to present relies on knowing the diagnosis yet the physician in some contexts will not tolerate a conclusion that appears unproven. This student/ physician, like other savvy students, adjusts his practices according to the scenario that he faces and actively uses the resources and constraints of his

situation to his advantage. Savvy students, of course, are well on their way to acquiring the cultural (education) and symbolic capital (recognition) that will help endow them with the agency that characterizes medical practitioners.

Attending physicians also improvised their reactions to and interventions into case presentations according to a number of factors. Several mentioned that their expectations changed depending on whether they perceived the presentation as a “work” or teaching situation. On the weekends, for example, during emerg service, physicians did not want long, explanatory presentations—just brief, relevant summaries. Some talked openly about adjusting their strategies of intervention according to the skill of the student. Doctor 5 indicated that he used the team as his mode of intervention. If he believed information was missing, at the end of a section, he would turn to the team and ask them if there was any further information that they needed. This was his coded way of indicating to the student that he or she had missed vital information. He found that the team almost inevitably asked the necessary questions and he could then just guide the interaction. Other physicians talked about the value of role modeling. They would stop a case presentation in order to role-model medical problem solving either by asking the student a series of guided questions or by doing a talk-aloud analysis of a problem. These strategic interventions, however, were rarely planned – they occurred as a reaction to specific cases. The following excerpt displays this role-modeling style of intervention. The student (13) is trying to figure out if a child has bronchiolitis or pneumonia. The doctor intervenes.

Dr. 10. ... I think these are the most common things. There's possibly bronchiolitis, or pneumonia, and it could be –like a viral—well I mean viral pneumonia and bronchiolitis are pretty sort of similar in this age group. But things like adeno. You know virus, virus stuff, but RSV. There's no influenza around yet. So something viral versus something bacterial. And I think it would be important to review this x-ray and just to make sure given the high white count and the high fever and the fact that she was on antibiotics before that she's not...doesn't have a bacterial prosis. And I think it's a reasonable thing to do, is to cover...while we're just doing that, but if the MP swab comes back positive and there's no infiltrate on the x-ray, then I think it would be reasonable to stop the antibiotics.

In this excerpt the physician is clearly modeling a medical model of problem solving. He is considering options, weighing possibilities, indicating the importance of future evidence and then presenting a “reasonable” plan of action. This kind of improvisation has real salience for the observing and participating student as it is his or her case. The practice matters here in a way that may not be captured by classroom instruction.

As part of our interview protocol, we asked all the participating physicians to talk about the way that they had been taught to do case presentations, a practice which all asserted was crucial for getting the work of medicine done, especially in hospital settings. None could remember ever having been taught explicitly how to do presentations. All asserted they had learned by experience, and the practices associated with case presentations had become second nature to them. However, as we have demonstrated, the case presentation is an intense site of situated teaching and learning for its participants. While students are learning how to do case

presentations, many of the common sense operations of medical practice become overt for this short period of time.

IV. What Are They Learning?

At the beginning our study we asked how the acquisition of the genre of case presentation shaped its users' professional identity or habitus (ways of interpreting, responding and classifying). What kinds of ideological assumptions are involved in this development of a professional identity and are being internalized as participants are using this genre? And what does this habitus have to do with questions of structure and agency?

Through case presentations students are learning how to tell a particular kind of story, a story that once they have mastered it provides them with a powerful form of agency. As noted earlier, the case presentation follows a general structure of chief complaint, history of present illness, past history, family history, social history, physical exam, diagnostic impression and management plan. Schryer has noted in earlier work (1994, 1999, 2000, 2002) that genres have chronotopic orientations to the control of time and space; they express in their structures, characteristic attitudes towards the control of space/ time. The medical case presentation begins in the patient's present time with the focus on some indications of illness (chief complaint). The case presentation shifts back and forth between the patient's past (past, family, and social history) and the present (history of the present illness and examination findings). The physician brings all this information to bear on his or her present diagnosis. In other words, the physician moves the story from the patient's time/ space into the medical time/space. Finally, the case presenter presents a plan to intervene in the patient's life world and consequently affect the patient's future. The rest of the case presentation is, in fact, a well-ordered argument to intervene in the patient's life processes by developing management plans. Few other genres in our society have as much influence as does the medical case presentation or its written equivalent, the medical record.

As also noted in earlier work (Schryer 1994; 2000; 2002), genres, such as case presentations, because of their chronotopic orientation are inherently ideological. For example, in the process of creating the case presentation, the physician turns the patient's story into a medical story. Both the students and their physician/ teachers acknowledged the necessity of this transformation. One doctor (7) stated categorically that

I don't want to hear the story as if the parents told the story too. And that's what I don't want to hear from a student, and sometimes that's what you get. Like the mother went to the grocery store, and then went to the nursery to pick up this kid, and on the way home the kid vomited twice, and had a fever of 37.6, and mother measured it again 3 hours later, it was 38.7, she measured 4 hours later and it was 39.9, and the kid vomited again a second and third time, and she decided to call the doctor, and the doctor said this, and... that's sort of the way a parent will present a story. I don't want to hear that...I wanted sifted material, organized material.

In comparing the two simulated case presentations, Doctor 11 critiqued the less expert student because he presented almost a “verbatim transcript of what he heard or took during the interview...and that there wasn’t enough understanding of presenting problem...” One savvy student (13) at the end of her rotation clearly understood and conveyed the process wherein a patient’s story is transformed into the medical story. She realized that interviewing a patient was like making a movie.

Every time you interview a patient, you’re trying to make a movie out of this patient. And so like a story...so she was this this year and that that year, but what really happened in between? So it sort of helped me to be more curious. Cause sometimes you feel like you’re invading a person’s privacy, but if you look at it that way, like making a movie, you really have to go frame by frame. And it helps you, because if you view it that way, if you roll it out, like roll your interview out like a roll of film, you immediately see what’s missing. And you just fill the spots right in...no matter how chaotic you are, you end up filling all the spaces.

The medical story is a powerful, efficient mechanism for transferring information about a patient to other healthcare professionals. After all, a complex series of life events can be reduced to the three-sentence summary. But the medical story is not the patient’s story. And it is possible that, as in all transformations, not only are important elements lost in the translation but the transformation itself involves objectification. The processes of a person’s life become, in fact, objectified. The person becomes a movie, a “case.” The person becomes nominalized.

In the process of creating the case presentation, the student also learns to transform the patient’s language into medical terminology. Earlier research by Schryer (1993; 1994) noted the important ontological distinction between symptoms and signs in medical discourse. Symptoms encompass the language that patients use to describe what ails them; signs encompass the language that healthcare professional use to indicate what they believe actually ails the patient. Signs describe what the physician actually sees or witnesses. Thus the language of signs has far more medical ontological reality than the language of symptoms.

We see this linguistic transformation at work both in the transcribed observations of the case presentations and in the interview data.

Student 5: And she was past 34 weeks. So I guess...she would have been overweight.

Doctor 5: We don’t use the term overweight. We tend to talk about LGA.

Student 5. Well, the mom being, the mom being an M.D. gave me some terms that I took at face value.

Doctor 5: But sometimes you have to step back and say, well Mom may not know.

As the interaction above indicates, the language of patients or their parents is not to be trusted, even if the parent is a doctor herself. LGA refers to “large for gestational age” and, like much medical terminology, has a greater sense of precision than the more ambiguous term “overweight” as LGA refers to a specific point of reference, average weight according to gestational age.

However, breaks in communication can occur as a result of this transformation. If the student/doctor has to return to the patient or the family and explain management of the problem, he or she will have to remember to undo the transformation and return to the linguistic register used by the patient. For some physicians because of time constraints or because of the power associated with medical terminology, this return to a more accessible register may not occur.

Throughout the interviews we heard both physicians and students assert the importance of using accurate terminology. Students knew that they had to use medical terminology to sound convincing. More importantly physicians knew that students had to use this terminology to reflect their understanding of medical practice. One physician (8) explains “And I often say to students, for example, if the parent uses a word like seizure, or they use a medical word, it’s important for you to clarify what they mean because it’s a medical word, it’s a diagnosis, it’s not a symptom or sign or something that they (the student) actually saw.” Through using terminology, students are learning in a deeply salient way medical methods of classifying phenomenon. However, inherent in this development of an efficient “habitus,” or the development of the improvisational strategies that students will need to be practicing physicians, is a devaluing and distrust of language produced by patients. This devaluation of language and lack of trust could again have hidden costs associated when physicians have to return to explain management issues to patients.

Finally, although the genre of case presentations is a powerful and effective mechanism for transferring information between healthcare professionals, it is taught in a way that could have negative implications for practitioners. While they are learning to present cases, students can be interrupted at any time. Sometimes these interruptions are extended and aggressive if the physician is not hearing the expected medical story. Once the expected medical story is being told, interruptions decline. It is possible that in addition to learning the case presentation student/physician are also being taught strategies of interruption to elicit the medical story. Research reports (see Roter & Hall, 1993, and Wissow et. al., 1998) have observed that physician-patient interactions can be marred by interruptions. Ironically, this professional tendency could have its roots in one of the central practices in the medical profession.

Conclusions

This research project into the workings of one genre—the medical case presentation—in a situated learning situation demonstrates some of the important features of the interrelationship between genres, social structures and questions of agency.

- Genres such as the case presentation, because they are regularized, create the time/ spaces where participants exercise a range of strategic choices. Both the students and their physician/ instructors deployed a wide range of techniques. The ground or path of the genre, however, provided them with the sense of structure they needed to insert those choices at appropriate moments. Because of the presence of the genre, these participants were able to negotiate their way through a complex and contradictory situation.
- Genres facilitate improvisation. Just like a good piece of “jazz” the genre lays down the line that the participants, once they understand the structure or conventions, can use to negotiate their own agency. Participants rarely know exactly what they are going to do or say. But the genre gives participants enough structure to develop a felt sense of what is appropriate to say or do at particular moments. Thus participants can develop over time a sense of agency as they figure out more and more of the appropriate choices for that generic situation.
- A constellation of strategies characterize genres. Not all participants in a genre use all the strategies associated with a genre. Participants select strategies that are appropriate to the genre but also appropriate to themselves. However, some strategies are clearly outside the genre (such as using incorrect terminology). Because social actors belong to multiple activity systems they can bring strategies from one system to another and perhaps even gain some cultural capital for doing so. However, novices who are learning acceptable strategies rarely have an opportunity for such innovation.
- In sites of situated learning, such as medical apprenticeships, professional genres can themselves become places of struggle to establish agency. Such situations are characterized by the overlapping activity systems of schooling and the profession. Students in our study had to learn how to negotiate the resulting contradictions. As these students attempted to control the turns and the “air time” associated with case presentation, they were trying to establish their own command of this genre. The attending physicians, of course, are unwilling to grant them this agency unless they feel certain that the student has truly mastered the medical story.
- Genres have ideological consequences. Learning how to use a genre, means being genred. It means learning how to see the world from the perspective of that genre’s characteristic structure, register and syntax. Through the medical cases presentation, doctors learn to classify the world in very specific ways, ways that could negatively affect communication with their patients.

In conclusion, our study has led us to see that interactions between structure and agency are complex and that dialectical theories are needed to account for that complexity, especially when agency is being negotiated across generations and levels of expertise. Social structures definitely affect agents, but individuals working in professional fields have access to agency as sets of strategic choices. That agency, however, is mediated through the genres they use to accomplish their field’s goals or purposes. As they acquire the genres of their fields, they also acquire the forms of agency associated with that field, but the acquisition of that agency has ideological consequences which could require critical examination.

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Notes

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² See also Lingard and Haber (1999).

³ The larger study investigates the role of the case presentation in four healthcare professions: medicine, optometry, social work and dentistry. The current study focuses on medicine.

⁴ In some instances the team's membership was expanded by elective students and additional residents.

⁵ In reporting the data, gender may also have been altered to provide a further level of anonymity.

⁶ Our use of grounded theory was modified as we first identified emergent themes but then allowed our theoretical orientations to affect our interpretations of those themes.

⁷ Non-parametric analysis was used when the data was not normally distributed; parametric analysis was used when the data was normally distributed.

⁸ Our classification of these videos was confirmed by participants' reactions. All of our participants (except one doctor) judged the more expert video as indeed representing a better student case presentation.

⁹ The only dissenting doctor thought both presentations were not adequate.

¹⁰ This pattern of commands has been witnessed in previous research (Lingard and Haber, 1999).

¹¹ Other researchers (Arluke, 1977; Anspach, 1988; Atkinson, 1988; and Hunter 1991) have also described this phenomenon.