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**Studying Sideways: An Ethnographic Study of Graduate
Students in Chemistry**

Contributors: Laura E. Hirshfield & Renad Ramahi

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Abstract

For my doctoral research, I aimed to explore gender interaction in scientific fields. In particular, I sought to study scientists in the early stages of their careers and so carried out an ethnography of graduate students in chemistry. This case study details my experience “studying sideways” (i.e., when researchers study groups of their peers). In contrast, most researchers “study up” (i.e., when researchers study elite groups) or “study down” (i.e., when researchers study marginalized groups). In my experience of studying graduate students as a graduate student, I faced obstacles gaining access, maintaining confidentiality, and living in the same community as my participants. However, in this case, I hope to share the insights and perspectives I gained through using this uncommon approach.

Learning Outcomes

By the end of this case, students should be able to

- Describe the concepts of studying up, studying down, and studying sideways
- Identify the strengths and weaknesses of studying sideways
- Develop strategies to maximize these strengths and minimize these weaknesses

Introduction

The purpose of this case study is to illustrate the experience of studying participants “like me” and to describe both the benefits and the challenges of this type of study. In my doctoral research, I conducted an ethnography to study gender interaction among graduate students in chemistry. As a graduate student myself at the time of the study, I faced the unique experience of “studying sideways,” rather than the more common “studying down” or “studying up.” Indeed, although there have been several commentaries and methodological pieces written about the experience of studying up (e.g., researchers studying elites) and studying down (e.g., researchers studying prisoners) (Bowman, 2010; Nader, 1969), there have been fewer discussions of these sort of lateral studies, particularly in sociology (see Plesner, 2011, for an exception). Thus, through this case study, I aim to describe the different challenges and advantages of this approach. Specifically, I will discuss the experience of studying sideways as it related to (a) gaining access to my research sites, (b) sharing a community with my participants, and (c) disseminating my results.

First, though, I would like to provide a bit more background about my study. I began this project hoping to explore women’s experience within science, technology, engineering, and math (STEM) disciplines. Although much of this research focused on women’s entry into or exit out of STEM fields (the “leaky pipeline”), I wanted to focus instead on the obstacles that women scientists face at work. As I was interested in these day-to-day experiences in the academic workplace, I chose to use ethnographic methods to conduct a study on men and women graduate students and postdoctoral

fellows in chemistry. Using more than 120 hr of ethnographic observation and 40 semi-structured interviews, my focus in the study was primarily on the gendered nature of authority, expertise, and impression management in a STEM context (please see Hirshfield, 2014, 2015, 2016, & 2017, for some of my research findings).

My focus in this project was on graduate students and postdocs because I felt that they provided a unique lens through which to explore authority and expertise in an academic setting. As scientists-in-training, graduate students, and postdocs are often put into contexts in which they have little power, yet when they shift to their role as teaching assistants or instructors, they are viewed as experts. In addition, as trainees who are being professionalized into the scientific academic sphere, but are not yet fully inculcated into it, they provide a unique perspective into the academy (Becker & Strauss, 1956; Merton, 1957). This sort of “liminality,” or the state of transition experienced during rites of passage (van Gennep, 1909), provides them with the opportunity for greater understanding or “penetration” of social structures (Turner, 1969; Willis, 1977). In other words, as members of the academy who are no longer fully students and who are not yet professors, graduate students are liminal actors who can provide scholars with rich, insightful, and “penetrating” views into the workings of the academic, scientific enterprise.

There are three general approaches that qualitative researchers have used to orient themselves with respect to the groups of people they study, most of which have been explored primarily in the field of anthropology. The most common approach taken by researchers is known as “studying down” (Priyadharshini, 2003), which is when researchers study disadvantaged groups of people, or people with less power than themselves. Notably, this lesser power can refer to differentials in age, gender, class, race, and so on. Although it is often viewed as easiest to gain access to these marginalized groups, there can be significant challenges in gaining access to them. For example, respondents may be more cautious with researchers and power imbalances may compromise the development of trust and rapport with members of these stigmatized groups (Bowman, 2010). Another framework that has become more common in the social sciences is “studying up,” or when researcher study groups in positions of higher power, often upper-class members of society. In her foundational work on this topic, Nader (1969) argued that examining more powerful groups invites researchers to ask not only why the poor are so poor but also why the wealthy are so wealthy. In other words, although these studies place researchers in less dominant roles and include potentially more difficult means of gaining access, the perspectives gained allow for greater understanding of society as a whole, as well as how different power relations affect society. Finally, the least common and discussed approach involves researchers “studying sideways,” or examining their comparative peers, to understand the motivations, perspectives, and practices of members of groups similar to their own. Although researchers in these situations have the advantage of insight due to this shared status with members of the group they study and a shared experience, this similarity may also be a hindrance (Bowman, 2010; Hannerz, 1998; Plesner, 2011). As a graduate student studying graduate students, I experienced the highs and lows of this sort of studying sideways. In this case, I describe these

experiences, including the benefits of being (in many ways) a member of the group I studied, as well as the challenges I experienced along the way.

Gaining Access

In most ethnographic research projects, one of the greatest barriers to actually beginning the study is finding an appropriate context to conduct the study and, more importantly, gaining permission or cooperation from those you wish to observe. Potential participants may feel discomfort about opening up their lives to a research study and researchers often lack the social networks to make the connections that are needed to gain this sort of access. My experiences, however, suggest that researchers “studying sideways” may find participants much easier to persuade—participants are much more likely to share social networks and to feel comfortable with people who are “like them.”

When I began to look for a research site for my dissertation work, my initial preference for the discipline to study was physics, given its highly masculine context and my previous work on this topic (Hirshfield, 2010). As such, using the contacts that I had developed from my earlier study and the social networks within the college town where I lived, I successfully set up a meeting with a graduate student in physics. During our hours-long conversation, I learned that physics would not be a feasible context for my study of gender and interactions styles. Due to my ignorance about various kinds of scientific research, I had no concept of what working in physics actually looked like on a day-to-day basis. Rather than the frequent conversations and team-work I had imagined, my informant described an extremely low level of interaction.

With the help of my research group and advisor, I reworked my proposal to shift my focus from physics to chemistry. However, although chemistry made more sense logistically (with a more even ratio of men to women and lab groups to ensure rich interactions), I did not have any acquaintances to help me gain access like I had in physics. Luckily, using the “weak ties” (Granovetter, 1973) that one of my dissertation committee members had with an administrator in the chemistry department, I successfully scheduled a meeting to “sell my research pitch.” As someone who was interested in education, he was excited to see what I would find after conducting my study, and as a result, he supported my project from the start: helping me to obtain a census of the graduate students (to help choose the research groups I would study), forwarding my name and request for access to faculty members, and endorsing my study to the department as a whole. Without his help and sponsorship, I would not have been granted entrance into these research groups or experienced such high levels of cooperation from my participants.

To begin my data collection, I had to ask for and receive permission from all of the members in each lab I chose to study. I originally had a very structured process to choose my labs (related to the ratio of men and women in each), but this fell to the wayside as I received more and more refusals from the faculty in charge of the research groups I chose. After I finally received permission from five

faculty members to observe their groups, my next steps involved visiting each group, introducing myself and my study to group members, and asking permission to observe. In the process, I needed to obtain signed informed consent forms for each person involved in the groups. In most labs, this was a relatively straightforward process, but in others, I had to provide many reassurances of my trustworthiness and commitment to both confidentiality and anonymity. In the process, my identity as a graduate student was key—these students seemed to see me as someone who could understand their lack of power and trusted me to protect them from embarrassment or retribution from their advisors, just as I would want to be protected myself.

Being in a Shared Community?

Although I definitely benefited from sharing communities with my participants, at times, I faced challenges in handling these sorts of connections. Indeed, sharing my identity with my participants created many difficulties for me, both ethically and logistically. As such, I discovered that “studying sideways” is just as tricky as studying up or down can be.

In a methodological article describing research in a physics laboratory, Doing (2004) outlined two different types of laboratory (or more broadly, science) ethnographies that have commonly been conducted. The first involves former scientists who have become trained as social scientists and then return to a scientific context to study it (e.g., Harry Collins). These authors argue that their knowledge of the field they study allows them to more fully understand laboratory processes and the social interactions that occur. The other form of laboratory study involves a naïve observer who enters the laboratory and/or scientific context with little scientific knowledge and learns about the site during the process of observing it (e.g., Sharon Traweek). These scholars argue that it is their very lack of knowledge that helps them to be better researchers in scientific environments because they are less likely to take for granted the social or political implications of what they witness.

For this study, I engaged primarily in the latter method of observation. I have very little personal background in the natural sciences and frequently had little understanding of the technical details discussed by my research participants. This caused difficulties for me at times: I struggled at first to take notes when I could not understand the minutiae of participants' presentations and conversations which moved quickly were fairly difficult to follow. However, there were many advantages to my ignorance of the specifics of chemistry. First, given my interest in interpersonal interaction, I did not get bogged down in the details of technical jargon, but rather, was able to focus on who was treated with the most respect, who talked the most, and so on. Second, knowing that I was not “in the loop,” respondents often tried to help me out so that I benefitted from explanatory data that I might not have otherwise received. For example, students passed notes to me explaining what specific terminology meant during meetings or whispered explanations to me about names that had been raised in conversations. During my subsequent interviews, they also gave careful explanations about departmental and disciplinary politics, described chemical and technical processes thoroughly but in

an elementary manner, and because of my own knowledge and expertise, focused more on presentational and interactional topics, rather than on their chemistry. Although one might assume that my presence and my role “studying sideways” would have little impact on my participants (or at least less so that one studying up or down), I found this not be the case. Perhaps due to my lack of knowledge with the content of my participants’ work, as well as my own identity as a “soft” (i.e., social) scientist, it is likely that my participants saw me as studying up, or studying a group with a greater status than my own.

At the same time, it is important to note that though I was a naïve observer in terms of science, I was also a “native” graduate student and academic. I benefitted from many of the positive aspects of being presumed by my participants to be somewhat similar to them in terms of age, academic experiences, and lifestyle. Shared experiences came up frequently in informal conversations during my observations, as well as in my more formal interviews. Often, these commonalities centered around experiences with life in our college town (such as the relatively high cost of retail or the effects of the harsh winters on mental health) or how horrible “prelims” (the required preliminary exams all graduate students take before graduation) were. The benefits of studying sideways appeared through our shared culture of graduate school and early adulthood, allowing for an informality and rapport with many of my participants that was both quick to establish and eased the potential awkwardness of my presence. However, my familiarity with graduate student life and experiences also sometimes caused me to fail to follow up or probe further about topics that my participants or I took for granted. I often realized this mistake as I sat down to analyze or write up my results—because I assumed that my participants shared experiences with or beliefs about certain campus organizations or policies, I had no evidence to back up my assertions about them or confirmation that their thoughts mimicked my own. In this regard, studying sideways put me at a disadvantage: my participants’ and my own assumptions about the similarities in our experiences were unfounded; these conversations quickly established major differences in our disciplines’ publication frequency and timing, regard for teaching and coursework, and norms of collaborative publication and research.

As I have noted, for the most part, my experience of studying sideways was primarily advantageous for me in the process of gathering data. Interestingly, it was even more positive in terms of my own career success. Indeed, as a graduate student, I also benefited from the professionalization that my participants received from their advisors. Two clear examples stand out: in one memorable research meeting, the faculty principal investigator (PI) described, in detail, the steps and process involved in submitting an NSF grant and fielded questions from his students about the logistics. Although grant-writing and funding processes differ a bit between the natural and social sciences, this was the first exposure I had ever received to national grant funding and the advice and explanations he gave have been immensely helpful in my subsequent career. Similarly, at a lab get-together held at the faculty PI’s house, several members of the group discussed job candidates that had recently given talks in their department. As a graduate student who planned to be on the job market the following year, I soaked up the faculty members’ advice/reaction to the job candidates’ performance just as much as

the graduating members of the lab did.

All in all, the benefits of sharing a community with the graduate students I studied far outweighed the costs. Although our shared experiences may have led to missed opportunities for clarification and description, I gained rapport with my participants quickly and benefitted from the professionalization they received from their faculty advisors in the meetings I observed.

Maintaining Confidentiality

Whether studying up, down, or sideways, maintaining confidentiality is one of social scientists biggest concerns, and also one of their largest challenges. Institutional Review Boards and the proposals we make to them help to provide clear descriptions of how we will maintain confidentiality and anonymity for our participants, including clear consent forms, policies about the protection of identifiable data, and guidelines regarding recruitment. Unfortunately, however, I had not thought nearly enough about the realities of confidentiality before I undertook my study. As with any ethnographic study, I was careful to promise that I would protect my participants' confidentiality and privacy (including strict language explaining that I would not share any of the scientific findings that I heard in group meetings). Yet, as I discovered once in the field, there are often questions of confidentiality that are more blurry.

Given my empathy with and understanding of the graduate students I studied and the tenuous position they held in academia, one of my greatest concerns was to remain vigilant in maintaining my study participants' confidentiality. Furthermore, because I was studying members of my own group, and because of my own experiences in graduate school, I was keenly aware that any critique made about colleagues or advisors could negatively affect these relationships. In one key instance, I was unable to fully use the data I collected for fear of making obvious one participants' views about his experience. As the only gay man *and* the only U.S.-born person of color, he had wonderful insights and thoughts about what it meant to be a minority in his research group, as well as in chemistry in general. Yet these comments would have immediately been identifiable, so I felt compelled to leave them out of the larger narrative of my work, an issue that I did not anticipate well enough prior to my time in the field. Although similar issues arise in any study involving few or lone minorities that might be recognizable to the group, I worried that this participant had been particularly open and unguarded with me due to my own identity. Studying sideways likely provided me with richer data, but I also felt greater protection of this participant because I viewed him as my colleague and peer.

Indeed, my research participants' confidentiality affected the way that I wrote my entire dissertation. The first chapter I wrote explored the relationship between faculty members' gender and the way they were perceived by their students. Given that the comparison was between just five faculty members, I was concerned that their identities would be difficult to conceal. Furthermore, I worried that students' relatively benign but critical comments about their advisors would cause friction. As a result, I chose

to publish the paper separately from my dissertation. Similarly, I chose to change the pseudonyms that I used throughout my dissertation, to ensure that judgmental comments made by my participants could not be traced back to them and damage their relationships with their peers or advisors. My concern regarding confidentiality has also affected the way that I debriefed my participants after the study was complete. I assured my participants that I would provide them with any subsequent publications I wrote using the data I gathered. However, once I completed my data collection and analysis, I felt significant apprehension about how participants' comments would be interpreted by their advisors. Thus, I have waited several years to share the results. I developed these methods post hoc in conversation with my peers and advisors, but would recommend that those undertaking similar "sideways studies" think through their strategy for sharing and writing about their data early on in the process to save themselves many headaches.

Finally, as a part of the larger, graduate student community in our town, I was quickly faced with awkward interpersonal confidentiality concerns, most of which I was unequipped to respond to. I shared acquaintances with many of my participants, which I discovered as I ran into them at private graduate student get-togethers, at Graduate Student Union meetings, and even at our graduation ceremony. Although research standards generally require that interviewers protect the identities of their participants, in these moments I was forced to ignore or pretend not to know participants, and in the process, be rude to people who had opened up to me, so as to live up to my promise of confidentiality. Indeed, years later, I am still often asked whether I know chemists who graduated from the school I studied or whether they were in my sample, and I am required to dodge these questions.

Conclusion

My shared identity with my research participants allowed me to bond more quickly and easily with the chemistry students I studied. Indeed, once I began my fieldwork, I learned quickly about the advantages of being a graduate student like my participants. Being a graduate student made it easier for me to gain their trust: we all lived in the same college town, went to the same grad student parties and coffee shops, and were members of the same union. As part of this community, it was much easier for them to see me as a peer and someone who could be trusted than it would have been for a faculty member or graduate student from another school. Similarly, they noted that they "did not feel judged" by me, as they would an observer higher up in the ranks of academia. Yet this shared identity also created several significant challenges. Gaining access to my research sites was more difficult given my lack of social networks, the shared community caused my participants to use shorthand that I often failed to unpack, and my own identity as a graduate student made me extra vigilant about protecting my participants' confidentiality.

Choosing to study a population that was not similar to my own instead may have alleviated some of the struggles I faced, yet the richness of the data I gathered is likely directly a result of studying sideways. For example, if I had studied a group with a lower status than my own (i.e., studied down),

I might have avoided the issues I faced trying to gain access into the field. On the contrary, I might not have been able to gain my participants' trust as easily. Conversely, if I had examined a group with higher status than my own (i.e., studied up), it is possible that my participants may have been relatively comfortable with me, given my relative lack of power. Yet I would likely have experienced greater difficulties gaining access into the field. In all, I am thankful that I chose to study sideways—in the process, I gained personal insight and gathered rich and powerful data. I have also learned some important lessons for future “sideways studies” that I wish to share with others. First, while brainstorming future research, particularly involving ethnographic methods, look closely at the ties and networks you have that could facilitate entry into whichever field you choose. Although these relationships should not narrow your research question, thinking about the practicalities of research studies is key. Second, be careful to anticipate any possible areas in which being a member of a community similar to your participants' may lead you to make assumptions about their experiences and build in compensations for these assumptions. Finally, think carefully about the likely effects of your work with this group—think through your plans for protecting your participants' confidentiality and privacy, for how you will write about their stories, and for how you will interact with them both during and after your study.

Exercises and Discussion Questions

1. How do the concepts of studying up, down, and sideways differ? Which of the strengths and weaknesses described above are specific to studying sideways and which are general to ethnographic work more broadly?
2. What are the key advantages and limitations of studying sideways? How did the researcher overcome these limitations? What are some additional ways that she could have overcome them?
3. As the researcher noted in her discussion of shared communities, her role as researcher and ethnographer shifted—sometimes seeming to study sideways, whereas others seemingly studying up. How do you think researchers should handle these sorts of shifts? What do you think the consequences of these shifts are for the research being undertaken?
4. How would you handle interactions with your participants such as those the researcher described (at university meetings or at graduation)? Do you think it is appropriate to ignore your participants (as she did) or is there a better way to handle it?
5. Discussions of studying up, down, and sideways mainly focus on qualitative research studies. How do you think these discussions relate to quantitative studies?

Further Reading

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