Learning systems: An ecological perspective on advanced academic literacy practices of multilingual writers

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Learning systems: An ecological perspective on advanced academic literacy practices of multilingual writers

Abstract
Recent work in composition’s leading journals has challenged the field’s exclusive focus on native English speakers and has called for a more international perspective on writing research and pedagogy. This dissertation, which grew from requests from multilingual graduate students in my own institution for more advanced academic writing support, extends this call to explore ways writing programs can better account for the needs of international graduate students, a growing population in US institutions. The role English has assumed as the lingua franca of international academic communication has made writing in English a critical skill for these students’ professional development. In many cases, even international students who return to their home countries after graduating must continue publishing in English if their work is to receive international recognition.

This dissertation includes case studies of five international doctoral students in an interdisciplinary environmental studies program learning to write for their fields. To examine this process, I meld theories of situated learning (i.e., “learning by doing”) with systems theory, a construct commonly used in natural resources management to study interrelationships between ecological, economic, and social factors in environmental phenomena. This ecological lens has allowed me to view more holistically the complex interrelationships between various factors on these students’ learning. Not only must these students write high-stakes academic documents in their second language and negotiate a variety of cultural differences between educational contexts in their home countries and in the US, but they must also piece together often implicit writing expertise distributed across a network of teachers and colleagues in the university and in their fields. Writing, for these students, is an intensely integrated process, requiring a more integrated model of university writing support than we generally provide. The goal of this study is to offer a more holistic perspective on advanced academic literacy learning and suggest ways of making more efficient use of departmental and university resources to meet these students’ needs.

Keywords
Language, General, Language, Rhetoric and Composition, Education, English as a Second Language

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LEARNING SYSTEMS: AN ECOLOGICAL PERSPECTIVE
ON ADVANCED ACADEMIC LITERACY PRACTICES
OF MULTILINGUAL WRITERS

BY

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DISSERTATION

Submitted to the University of New Hampshire
in Partial Fulfillment of
the Requirements for the Degree of
Doctor of Philosophy
in
English

September, 2010
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Researching doctoral students as a doctoral student is an interesting and reflexive experience. Learning about the ways my case study participants negotiated complex networks of support—from advisors, other students, and loved ones—made me better appreciate the incredible network of scholars, colleagues, and friends who contributed to my own work. While we like to think of dissertation writing as a highly individual affair—as the product of an individual mind—in reality, it takes a village to write a dissertation. I would like to take a moment to thank the members of my village.

I am forever grateful to the five international doctoral students who agreed to participate in my study—Gabi, Paulo, Salman, Girmi, and Ana—as without them my dissertation would not have even gotten off the ground. As a doctoral student, I can appreciate how valuable and scarce time is, and so I thank each of them for taking the time to answer my questions and for sharing their successes, their difficulties, their fears, and their future goals. Through working with these participants, I have a much deeper appreciation for just how hard each of them have worked to get to where they are in their professional lives, and I have a renewed sense of why this study is so important. My goal in telling their stories has been to give voice to their needs and concerns in US universities, and I hope to have done so accurately and ethically. As with all good qualitative studies, my participants have taught me much about their experiences and about myself as a scholar. Along these same lines, I would also like to thank the other faculty and students associated with the IES program for helping with my study and for allowing me to sit in on various events.
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I was told before coming to UNH that Tom Newkirk was an excellent dissertation advisor, and I have found this to be very true. I was fortunate to have him at the helm of my project. Tom has a knack for encouraging students to pursue research topics that are both personally fulfilling and intellectually engaging, and for helping students develop their own thoughts on their topics in those early stages where all one can muster is a page of free-written nonsense. He is a patient, supportive, and nurturing advisor, and I thank him for the encouragement he gave me throughout this project.

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when I had to be a little antisocial. I thank all my friends at Grad IV for their thoughts and prayers these past years and for their support through the rough times.

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ABSTRACT
LEARNING SYSTEMS: AN ECOLOGICAL PERSPECTIVE ON ADVANCED ACADEMIC LITERACY PRACTICES OF MULTILINGUAL WRITERS
By
Steve Simpson
University of New Hampshire, September, 2010

Recent work in composition’s leading journals has challenged the field’s exclusive focus on native English speakers and has called for a more international perspective on writing research and pedagogy. This dissertation, which grew from requests from multilingual graduate students in my own institution for more advanced academic writing support, extends this call to explore ways writing programs can better account for the needs of international graduate students, a growing population in US institutions. The role English has assumed as the lingua franca of international academic communication has made writing in English a critical skill for these students’ professional development. In many cases, even international students who return to their home countries after graduating must continue publishing in English if their work is to receive international recognition.

This dissertation includes case studies of five international doctoral students in an interdisciplinary environmental studies program learning to write for their fields. To examine this process, I meld theories of situated learning (i.e., “learning by doing”) with systems theory, a construct commonly used in natural resources management to study
interrelationships between ecological, economic, and social factors in environmental phenomena. This ecological lens has allowed me to view more holistically the complex interrelationships between various factors on these students’ learning. Not only must these students write high-stakes academic documents in their second language and negotiate a variety of cultural differences between educational contexts in their home countries and in the US, but they must also piece together often implicit writing expertise distributed across a network of teachers and colleagues in the university and in their fields. Writing, for these students, is an intensely integrated process, requiring a more integrated model of university writing support than we generally provide. The goal of this study is to offer a more holistic perspective on advanced academic literacy learning and suggest ways of making more efficient use of departmental and university resources to meet these students’ needs.
CHAPTER I

AN ECOLOGICAL VIEW OF INTERNATIONAL STUDENTS IN US GRADUATE PROGRAMS

An international student-friendly campus is one that does all it can to ensure that the international students who enroll are provided with various forms of specialized assistance designed to ensure success in their studies and their stay in the U.S. Toward that end, the institution employs professional staff whose primary goal is the successful academic, linguistic, psychological, and cultural adjustment of each international student who enrolls on the campus.

— US Department of State
EducationUSA

We give a great deal of thought to what we need to teach our graduate students, but very little thought to how they learn.

— David Damrosch, We Scholars: Changing the Culture of the University

Recent work by composition’s leading journals has challenged the field’s exclusive focus on native English speakers and has called for a more “internationalist” perspective on writing research and pedagogy, which is critical given the increasingly ‘international’ nature of higher education and academic research (Canagarajah, 2006a, 2006b; Donahue, 2009; Horner & Trimbur, 2002; Matsuda, 2006). Statistics published in the International Institute of Education’s (2009) Open Doors report indicate that the demographics of US colleges and universities have been steadily changing. In the 2008-2009 school year, for example, there were 671,616 visa-holding international students at US institutions, up 7.7% from the previous year. For universities such as the University
of Southern California, international students comprise 21% of the total student population.¹

Numerous factors account for the rising number of international students² in US institutions since the 1950s, though recently this trend is partly attributable to intentional efforts by many universities to boost international student enrollment through various means, including exchange programs with overseas universities and recruiting agencies. For better or worse, international students have become a “cash cow” for many universities, not to mention the fact that schools benefit from the prestige associated with “internationalizing” their disciplines, particularly the natural sciences.³ This chapter’s first epigraph, in fact, comes from a page on the US State Department’s website offering universities advice on how to internationalize their campuses, emphasizing—quite bluntly—the economic and diplomatic benefits of doing so. One section of this website provides documents helping university employees make the case for international recruitment to administrators, among which are a NAFSA: Association of International Educators report on the economic benefits of international education to the US, and a 12-page document—aptly titled “Foreign Students Yesterday, World Leaders Today”—Listing all the international diplomats who received undergraduate or graduate degrees at US

¹ These statistics only include the number of students with F-1 or J-1 international student/international scholar visas. They do not include resident multilingual students or students with other forms of documentation. They also do not distinguish between native English-speaking and non-native English speaking international students.

² In this study, I focus on international students, defined more broadly as students who come to the United States specifically to attend university (rather than by visa status). I acknowledge, however, that resident multilingual students are also a rising population in US institutions, a population I hope to research more in future projects. For more on resident ESL populations, see Roberge, Siegal, and Harklau (2009).

³ The IIE estimates that international students contribute approximately $15.543 billion to state economies across the country. For more, see the IIE website: http://www.opendoors.iienetwork.org/
institutions—President Mikhail Saakashvili of Georgia, King Abdullah of Jordan, etc. The implication, of course, is that encouraging international students to study in the US helps avoid future political conflict.

The mission statements and strategic plans of many US universities communicate the desire to be “international,” or to prepare students for the “global” workforce. As a compositionist interested in issues of multiculturalism and multilingualism, I welcome these goals. Likewise, I appreciate the US State Department’s nod toward supporting international students’ “academic, linguistic, psychological, and cultural adjustment,” even though I distance myself from their economic and political motivations. Such appeals to internationalization, however, raise numerous pragmatic questions about just what it means for higher education to be truly “international” and what support mechanisms are needed to accommodate growing international student populations. Who in the university provides these services? Does it necessitate creating a new department, or can existing departments and university resources be used? Is it possible for one entity to support students’ “academic, linguistic, psychological, and cultural adjustment?” What does such support look like? And who benefits from this support? Just international students? Or can these support mechanisms also accommodate resident multilingual writers, or perhaps even native English speaking students? The reality is that such questions are often very difficult to answer, and discussions of such matters often evolve into finger pointing and fierce boundary disputes: this is our department, and here’s what we can do; we are not responsible for such-and-such—that’s your job. For composition studies, a field which has traditionally focused its efforts on undergraduate, native English Speaking students (Kamler & Thomson, 2006; Matsuda, 1999, 2006; Russell,
1991), the question is whether such an exclusive focus is feasible given the changing demographics and writing needs in US institutions. What role can—or should—writing studies play in the internationalization of higher education?

In this study, I am particularly concerned with international graduate students, who comprise almost half of the overall international student population. The role English has assumed as the dominant—or dominating—language of international academic research has made writing in English a critical skill for multilingual writers in both American and overseas institutions. In many cases, even international graduate students who return to their home countries after graduating from US institutions must continue publishing in English if their work is to receive international recognition (Swales, 1997, 2004; Tardy, 2004b; Wood, 2001). Given the importance of writing in English to the professional development of multilingual graduate students, it is surprising that very little attention has been given to this subject in mainstream composition studies, and that many universities have few advanced writing resources for multilingual graduate students.

The motivation for this project came from my own experiences helping three international doctoral students write dissertation prospectuses in the summer of 2007. These students were casualties of a highly compartmentalized university system. They had taken the ESL course for graduate students offered through the English Department, which focused mostly on basic oral and written English proficiency, but felt they needed additional support learning the advanced academic writing conventions of their fields. They had spoken to advisors in their departments, who felt comfortable helping them with disciplinary content but believed themselves to be ill-equipped to help students with
what they identified as language-related needs. The resulting situation in many ways resembled the “disciplinary division of labor” between composition studies and TESL described by Matsuda (1999), wherein the responsibility of teaching two halves of a highly integrated skill—i.e., writing in a second language—is split between two or more academic departments, though in this case, the labor was distributed even further across campus.

Working with these students, I was struck by the complexity of their learning processes. As non-native English speakers (NNES), they were still developing the linguistic abilities needed to write in their second language, but—like most native speaking graduate students—they were simultaneously learning the ways of writing and knowing particular to their fields of study. Often, it was not clear either to the students or to their advisors whether their writing difficulties stemmed from general problems with English proficiency or from their unfamiliarity with disciplinary language and conventions. Most often, students and faculty both chalked everything up to “grammar problems.”

More striking, however, were the multiple acts of negotiation in which these students engaged while writing. Two of them, as students in an interdisciplinary environmental studies program, were writing for dissertation committees comprised of scholars from disciplines as far-ranging as biology, natural resources, economics, and political science. As students in an interdisciplinary program, it was not always clear to them just what sort of writing was characteristic of professionals in their “disciplines,”

\textsuperscript{4} I will use the abbreviations “NNES” and “NES” to refer to non-native English-speaking students and native English-speaking students, respectively. I acknowledge the problematic nature of these terms (see for example (Holliday, 2006). I am using the term because it suggests students might have a higher proficiency in a language other than English; however, I also hope to blur to distinctions between these labels through case studies of “NNES” students who have used English as an academic language their entire lives.
and neither was it always the case that they were composing for the audiences and in the
genres they would need to use later on. Moreover, these students’ professional goals
varied considerably from those of their American, native-speaking counterparts. Two of
these students planned to return to their home countries after completing their degrees;
one even retained a faculty position to which she was obligated to return. Thus, much of
their professional lives would be spent navigating differing academic communities and
academic writing demands. In short, for these students, learning entailed constructing a
mental model of the sort of discipline they were training to enter—a task complicated by
the interdisciplinarity of their fields—and adapt this knowledge to suit their own
academic identities, professional objectives, and learning trajectories.

At times, students expressed frustration with the distinctions faculty made
between “linguistic” and “disciplinary” concerns, a frustration that surfaced in an
interview for this study with Salman, an ocean mapping student from Pakistan. At one
point in the interview, Salman stopped me and offered an analogy:

Think about cooking a good dish. You have all these spices—these are your
conventions, your grammars, and all your vocabulary—they’re sitting separately
on the table. And then you have to combine them together in a way that they
are... that they come out as a good reading. Like, that’s your dish, that’s what
you’re going to offer to your readers.

That is, the problem for Salman becomes one of figuring out how to combine the various
pieces—or ingredients—necessary to cook up a good read when the resources needed to
do so are distributed across the entire campus—or nonexistent. This is the central
problem I set out to explore with this project. The writing process for international
graduate students is a highly complex, integrated process, yet the highly
compartmentalized nature of many university systems makes it difficult to address these
students' needs holistically. Not to mention, much of the support that is commonly offered happens early in students' academic careers, leaving little to no support later when the student is engaged in critical, high stakes writing such as dissertation research, grant proposals, and articles for publication, the last of which are becoming increasingly important in American graduate programs.

In this vein, the goal for my project was to step back and examine more holistically the process by which international doctoral students navigate the many cultural, disciplinary, and individual factors affecting their academic performances—to develop a more ecological perspective on advanced academic literacy\(^5\) learning that better accounts for the interrelationships among these factors—and to consider ways writing programs in concert with other departments across campus can provide support that better accounts for the holistic nature of this process. That is, I am not as interested in hashing out which department on campus is supposed to be doing what; rather, I am interested in helping departments see these students' concerns as a shared responsibility, and to see their success as benefitting not only the individual students, but the university and their respective fields, as well.

More specifically, this project is a qualitative case study of five international doctoral students learning to write critical academic documents in an Interdisciplinary Environmental Studies program (IES) at Northeastern Land Grant University (NLGU). I draw from theories of situated learning in the Vygotskian tradition (Lave & Wenger, 1991; Rogoff, 1990, 1995, 2003; Wenger, 1998) and systems theory (Checkland &

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\(^5\) Researchers in English for academic purposes (EAP) use the phrase “advanced academic literacy” to denote the literacy practices of graduate students and professional scholars and to distinguish between these practices and those common in undergraduate or extracurricular contexts. See for example Braine (2002), Casanave (2002), and Tardy (2005)
Scholes, 1990; Laszlo, 1996; Meadows, 2008), which together provide an apt lens for examining the highly integrated nature of advanced academic literacy learning. I contend that such in-depth, richly-layered perspectives on these students’ learning processes are necessary before we can even begin to think about how to design appropriate writing support mechanisms.

In the following sections, I provide a narrative account of my own thought process throughout this project and of the theoretical traditions guiding my study. I begin with a brief discussion of sociohistoric theories of learning and development, outlining three domains of learning which are critical to understanding international doctoral students’ experiences in US universities. I then present systems theory as a means of seeing the highly interrelated nature of these domains and as a method of problem-solving aspects of university systems that complicate efforts to provide graduate-level writing support.

**The Sociohistoric Approach to Learning and Development**

Like many studies of advanced academic literacy development, this study draws from sociohistoric theories of learning to examine the intricate, highly participatory manner of literacy learning in graduate school (Casanave, 2002; Casanave & Li, 2008; Ding, 2008; Prior, 1998).

The sociohistoric school of learning and development is derived from the works of L.S. Vygotsky (1978, 1986) and his colleagues Leont’ev and Luria (Leont’ev, 1978). Vygotsky’s original research agenda sought to study learning and development in ways that examined the functional relationships between factors he believed to be dialectically
related, factors such as behavior and thought, or the individual and her environment (Minick, 1996). Both he and his successors eventually settled on human activity as the analytic unit that best suited this focus of study—that is, socio-historic studies examine human engagement in meaningful culturally-mediated tasks or activities.

A wide array of research activity has sprung from Vygotsky’s original research tradition, including cross-cultural studies of human development (Cole, 1996; Rogoff, 1990, 2003; Scribner & Cole, 1981), situated cognition and learning (Chaiklin & Lave, 1993; Lave, 1988; Lave & Rogoff, 1984; Lave & Wenger, 1991), and Activity Theory (Engstrom, 1999; Leont’ev, 1978; Russell, 1995; Wertsch, 1991, 1998; Wertsch, Rio, & Alvarez, 1995). In particular, Lave and Wenger’s (1991) *Situated Learning: Legitimate Peripheral Participation* uses case studies of apprenticeships in various trades and organizations to pose a model of learning as situated in practice. That is, people learn the skills and values of a community of practice through varying degrees of authentic participation within these communities. Lave and Wenger’s analytical perspective on participatory learning has been very useful for academic writing researchers examining the process of learning discipline-specific practices and writing conventions (Berkenkotter, Huckin, & Ackerman, 1991, 1995; Casanave, 2002; Dias, Freedman, Medway, & Pare, 1999; Ding, 2008; Prior, 1998), workplace writing (Beaufort, 2000; Cox, 2006; Dias et al., 1999; Dias & Pare, 2000) and writing for publication (Blakeslee, 1997; Li, 2006a, 2006b).

Barbara Rogoff’s (1990, 1995, 2003) complementary work on guided participation, however, offers several critical clarifications for researchers using sociohistoric constructs, clarifications with important implications for studies of
advanced academic literacy. Rogoff (1995) challenges our perception of the 
apprenticeship metaphor, which often suggests one-on-one relationships between experts
and novices.⁶ Cognitive apprenticeships do not always assume this form. “Apprenticeship
as a concept,” Rogoff argues, “goes far beyond expert-novice dyads; it focuses on a
system of interpersonal involvements and arrangements in which people engage in
culturally organized activity in which apprentices become more responsible participants”
(p. 143, emphasis added). In her study of a Girl Scout cookie drive, for example, Rogoff
posits the institutional structure of the cookie drive, itself, as an instance of
“apprenticeship,” as it creates the opportunity for numerous structured, interpersonal
encounters encouraging participants’ personal growth.

Moreover, Rogoff challenges researchers to consider ways to explore the
interrelationship of a learner and her environment without forcing false distinctions
between these two domains—which she sees as inseparable—and without privileging one
domain over the other. In her Girl Scout study, Rogoff identifies three domains which
simultaneously contribute to participants’ experience: the institutional domain (i.e., the
Girl Scout organization); the interpersonal domain (i.e., activity in the Girl Scout troop
among members, volunteers, etc.); and the individual domain (i.e., the individual Girl
Scouts). While it might be necessary in a particular study to foreground one domain (e.g.,
focusing on how the Girl Scouts as an institution scaffolds participants’ moral
development), Rogoff contends that one must still view these domains as inseparable.

⁶ Lave and Wenger (1991) also challenge dyadic notions of apprenticeship, though their particular choice of
case studies—meat-cutters, midwives, etc.—might unintentionally reinforce the more traditional expert-
novice framework.
These concepts are critical for studies of international graduate students in US institutions. The emphasis on “apprenticeships” in sociohistorical theory has prompted researchers to focus on the mentoring relationship between advisors and their students (Belcher, 1994; Blakeslee, 1997; Simpson & Matsuda, 2008), and while this relationship is important in graduate education, it is not the only source of student learning. For many graduate students, expertise is not located in a centralized place or person; rather, expertise is distributed across a system of people, publications, and activities, requiring learners to synthesize expert knowledge from a variety of sources. Further, participating in academic activities often requires international graduate students to negotiate multiple domains simultaneously, reconciling what they have learned from academic settings in their home countries with what they’ve learned from US settings, constructing a sense of disciplinary practice within their fields, and balancing their own professional goals and objectives with others’.

Early in this study, I identified three domains of learning relevant to international doctoral students’ experiences in US institutions, based partly on Rogoff’s (1995) model: the geopolitical/cultural domain, the disciplinary domain, and the individual/personal domain. For international doctoral students, I contend, writing requires the simultaneous, active negotiation of each of these domains. As I will show below, there is ample research in ESL writing, English for academic purposes (EAP), and writing studies addressing students’ negotiation processes in each of these domains, though often the particular goals of researchers have required them to separate or isolate factors affecting learning in each of them. The challenge for researchers is how best to depict and understand the interrelationships between these highly imbricated domains, for as I have
learned—and as I will articulate later—the very act of identifying these domains forces arbitrary distinctions between them. Seeing the interrelationships between these domains is critical for challenging prevalent mental models of advanced academic literacy as sets of divisible skills best handled separately by various university departments.

**Geopolitical/Cultural Domain: International Students and Academic Writing**

By geopolitical/cultural domain, I am referring both to general cultural differences international students negotiate moving between educational contexts in different cultures (e.g., differing conceptions of classroom behavior and interaction between professors and students, differing orientations toward work and family, differing rhetorical uses of language in academic writing, etc.) and—perhaps more significantly—the larger political and economic factors affecting academic work and/or publishing transnationally.

As I mentioned earlier, international student enrollment has become highly politicized, and not just in US institutions. Recent articles in the *The Chronicle of Higher Education* indicate significant competition between US and European universities for international students, causing universities worldwide to step up recruiting tactics in order to maintain or grow their share in the international student “market” (Labi, 2007; McMurtrie, 2005; Quill, 2007).\(^7\) International students, however, often have different objectives for studying in US universities. In many cases, these objectives are linked to issues of access: access to valuable scientific funding and resources and to academic communities of practice. Considering the role English has assumed as the *lingua franca*

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\(^7\) For a more thorough treatment of this subject, see the United States Government Accountability Office’s congressional report, *Higher Education: United States’ and Other Countries’ Strategies for Attracting and Funding International Students* (Scott, 2008).
of international academic research, advanced academic literacy in English is often critical to negotiating access to these valuable resources, a phenomenon evoking mixed responses from scholars in applied linguistics and second language writing (Belcher, 2007; Canagarajah, 2002a; Pennycook, 1994; Salager-Meyer, 2008; Swales, 1997; Tardy, 2004b). To some, a common academic language aids the international dissemination of research and provides opportunities for researchers from developing countries to contribute to international scholarly efforts and vie for much needed scientific funding. Thus, many faculty and student participants in my study and others\(^8\) assume a very pragmatic stance toward English as *lingua franca*: “it may seem unfair, but it’s necessary.” To others, the adoption of English as academic *lingua franca* has complicated international scholarly exchange. Belcher (2007) has indicated that in many cases, English-medium journals positing themselves as “international” are often still based in American or Western European contexts, and often privilege articles written by scholars affiliated with Western institutions. Moreover, Canagarajah (2002a, 2002b) has written at length about the difficulties “periphery” scholars—in his case, Sri Lankan researchers—have faced trying to publish in “center-based” peer-reviewed journals. The fact that article submissions are written in English, according to Canagarajah, is not enough to ensure a fair reading from peer reviewers. Periphery scholars must also position their research within center-based scholarly concerns; cite mainstream researchers in the discipline, even if that research is unavailable in the scholars’ home country; and adopt rhetorical strategies common to center-based academic writing, even if these strategies seem redundant or arrogant to periphery scholars’ own linguistic sensitivities. In short, the adoption of English as an academic language has allowed center-based research

\(^8\) See Tardy’s (2004) survey of international graduate students, for example.
institutions to establish significant control over the process of knowledge construction—to determine which subjects are worthy of scholarly attention, how such subjects can be researched, and who gets to speak on such issues—and international scholars are often forced to publish in English if they wish for their discoveries to receive international attention (Canagarajah, 2002a; Flowerdew, 1999; Swales, 2004).

As a result, international students may have any number of reasons for studying at American institutions, and by extension, for writing and publishing in English. For some, American institutions provide access to center-based scholarly practices and communities. For others, studying in America enhances their marketability at universities and corporations in their home country, or increases the prestige of their home institutions. Likewise, international students must often juggle a series of competing demands from both home and American institutions, and must sometimes shuttle between disparate communities and cultures. As Canagarajah (2002b) has argued, “multilingual students already come with membership in other communities of practice” (p. 31), and reconciling membership in diverse communities can often be difficult. Those students who decide to ‘assimilate’ into American academic communities, for example, risk severing ties with previous academic communities and with family. Further, those who decide to maintain membership in both communities or to resume participation in their home academic contexts might find, as Canagarajah (2002a) did, that disciplinary and academic writing practices do not always translate directly from one context to another.

Moreover, as Braine (2002) shares from his own experiences as an international student,

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9 A recent article in The Chronicle of Higher Education (Campbell, 2007) reports that many Latin American universities have paid for their faculty to receive advanced degrees in America in order to raise accreditation standards in their own institution, as was the case with Ana in this study. This is similar to professors in 19th century American colleges, many of whom completed their doctoral work in Germany. See Russell (1991) for more on this issue.
transitioning to life in US institutions requires more than just a shift in academic work habits. Adjusting to life in a new setting—in Braine’s case, adjusting to cramped university housing for graduate students; in one of my participants’ cases, adjusting to the feeling of isolation from other students—compounds the stresses of university life.

**Disciplinary Domain: Learning Academic Participation in an Interdisciplinary Program**

By *disciplinary domain*, I am referring to the practices, writing conventions, epistemological orientations, and values shared—or at least acknowledged—by participants in a particular research area or academic community of practice. A large body of research in composition studies and English for Academic Purposes explores disciplinary writing practices in undergraduate education (Anderson, McCarthy, & Walvoord, 1990; Herrington, 1985; McCarthy, 1987; Russell, 1991; Thaiss & Zawacki, 2006), graduate education (Prior, 1998; Swales, 2004), and professional academic activity (Bazerman, 1988; Hyland, 2004; Myers, 1985a, 1985b). Many researchers in these fields contend that writing is not a generalizable skill that can be learned out of context and then applied to specific situations; rather writing, to many of these scholars, is a situated activity that is integrally tied to the particular conversations, conventions, and genres employed by professionals within a community of practice. In other words, writing is a way of participating in a disciplinary community (Dias et al., 1999; Russell, 1995), and the task of *any* graduate student regardless of her native language is to learn discipline-specific language practices.
What makes this learning process so difficult is that ‘disciplines’ are not static entities, and thus the means of producing and disseminating knowledge are constantly in flux (Hyland, 2004; Thaiss & Zawacki, 2006). At the macro level, disciplines evolve as a result of changing material and political conditions in society, as we see from Bazerman’s (1988) account of the development of the scientific research article in publications of the Royal Society of London. But as Prior (1998) indicates, disciplines also have local histories. In other words, disciplinary practices can vary from one institution to another. Composition studies, for example, has a much different history at the University of New Hampshire than it does at Carnegie Mellon or Purdue University, as its trajectory has been informed considerably by the particular scholars who have worked at these differing institutions and the particular strengths and emphases they have brought to these programs. Thus, numerous accounts in the literature describe the experiences of graduate students negotiating their personal identities and previous educational experiences with the specific disciplinary preferences of professors in their programs (Berkenkotter, Huckin, and Ackerman, 1991, 1995; Casanave, 2002).10

NNES international students often experience additional layers of complexity in learning disciplinary practice. As Canagarajah (2002a, 2002b) has argued, disciplinary practice often differs cross-nationally just as it does cross-institutionally, and students with experience working in overseas academic contexts might find disciplinary practice in US settings surprising, confusing, or even unsettling. Not to mention, because disciplinary content is embedded in disciplinary language—which often differs

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10 Two specific examples I have in mind are Berkenkotter, Huckin, and Ackerman’s “Nate,” a composition studies student who had to reconcile his expressionist leanings with Carnegie Mellon’s emphasis on social scientistic research methods, and Casanave’s “Virginia,” who butted heads with her sociology program’s preference for quantitative research.
considerably from basic interactional language—multilingual graduate students have the additional challenge of acquiring disciplinary language and understanding discipline-specific concepts in a second language. As I will argue later in this study, these additional layers of complexity make the experience of learning disciplinary conventions significantly different for international students than for native speaking, American students, even if they appear to be struggling with the same issues. For example, faculty commonly differentiated between “ESL issues” and “issues with which every graduate student struggles” (e.g., learning how much information to include in a research article’s methods section). However, one must remember that while both populations might struggle to learn these conventions, each might have a different constellation of factors contributing to their difficulties. These separations between “ESL issues” and “issues with which every graduate student struggles” reinforce the notion that ESL students can and should go elsewhere to work on their language, which would then bring them up to speed so they could learn disciplinary conventions like everyone else. Thinking of these issues as highly integrated, however, might suggest a completely different approach.

In this study, the notion of disciplinarity becomes even more complicated given the multidisciplinary nature of the IES program. Interdisciplinary programs have become increasingly popular in recent years,\textsuperscript{11} due in part to the realization that many issues—particularly environmental ones—are best addressed by integrating the knowledge of multiple domains, such as biology, economics, political science, and oceanography. Given the growing popularity of interdisciplinary programs, the dearth of research on this matter in writing studies is surprising. Much disciplinary writing research focuses on

\textsuperscript{11} For more on the growing popularity and debate surrounding interdisciplinary programs of study, see Davis (2007), Hood (2007), Lattuca (2002), and Stuart (2007).
writing practices within ‘traditional’ disciplines—that is, writing in sociology, writing in political science, writing in architecture, and so on (Anderson et al., 1990; Chiseri-Strater, 1991; Dias et al., 1999; McCarthy, 1987; Prior, 1998). In some cases, scholars acknowledge the interdisciplinary nature of the fields they study but stop short of exploring the full implications of this interdisciplinarity. 12 Betty Samraj (1995, 2000; Samraj & Swales, 2000) has conducted the most comprehensive research on interdisciplinary graduate programs. In her study of the University of Michigan’s environmental studies program, she found that “having diverse types [of disciplines] housed ‘all under one roof’ does not, of itself, interdisciplinarity make” (Samraj and Swales, 2000: 40). While the department she studied generally succeeded in encouraging students to contribute to multi-disciplinary discussions outside the university (what she referred to as “exogenous” interdisciplinarity), it did not always encourage cooperative practices amongst disciplines within the program (i.e., “endogenous” interdisciplinarity). Thus every course students took within the program was an island, complete with its own preferred research methods, bodies of literature, and epistemological assumptions, and every course required adherence to differing sets of rhetorical conventions.

Again, for many NNES international students, these issues of interdisciplinarity compound the difficulties of learning disciplinary practice. Not only do they need to assemble a sense of “disciplinary” practice from a diverse array of sources, but in many cases, their most significant language-learning experiences to date have occurred within

12 Berkenkotter, Huckin, and Ackerman’s (1991) account of Nate, for example, indicates that CMU’s rhetoric program “enables students to enter a field that draws on the expertise of researchers and scholars in a number of disciplines,” including cognitive psychology, classical and contemporary rhetoric, linguistics, and computer science (p. 194). However, they spend very little time discussing the differences students are likely to encounter within the program; rather, this interdisciplinary department soon becomes, for the purposes of this study, a more cohesive “writing research community” (199), and the focus shifts to emphasize the differences between Nate’s previous research community and his current one.
the context of *their own* disciplines. Many participants admitted to having very
discipline-specific vocabularies and feeling completely flummoxed by the language of
other disciplinary communities they encountered.

**The Individual/Personal Domain: Individual Acts of Negotiation**

**within Communities of Practice**

The *individual/personal* domain is, perhaps, the hardest to define within the
sociohistoric framework, as sociohistoric researchers contend (as I do) that there *is* no
individual apart from the social (Wertsch, 1991, 1998). In Rogoff’s (1995) model of
activity within the Girl Scout cookie drive, the learning that occurs *individually*—what
Rogoff terms participatory appropriation—results from participation in the activity with
other learners. That is, the learner *appropriates* activity that occurs in the interpersonal
plane and changes in ways that affect her performance in later activities.\(^\text{13}\)

However, no
two people experiencing the same activity in the interpersonal plane will appropriate it in
the same way, even if they share a common cultural background. Rather, this process
appears to be highly idiosyncratic, as each learner brings to a particular experience a
differing array of previous experiences, differing personalities and dispositions, and
differing goals and motivations. Thus, appropriating activity and synthesizing it with
one’s current body of experiences is a creative act requiring some degree of personal
agency (Flower, 1994). These differences in how learners appropriate and synthesize
experiences are what I consider to be the *individual/personal domain*.

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\(^{13}\) This idea follows from Vygotsky’s (1978) notion that “every function in the child’s cultural development
appears twice: first on the social level, and later, on the individual level; first *between* people
(*interpsychological*), and then *inside* the child (*intrapsychological*)” (p. 57).
Within sociohistoric research in writing studies and EAP, Prior (1998) has laid the best framework for exploring the interpenetrated roles of social and individual factors in learning discipline specific writing skills. Drawing from research in situated learning and from Bakhtinian perspectives on language and speech genres, Prior performs microanalyses of literate activity in graduate seminars in a number of disciplines, including sociology, geology, and American Studies. Like Lave and Wenger (1991), he stresses the role of peripheral participation in these students' academic literacy development. However, this literate activity, to Prior, is both "laminated" and "perspectival"—that is, "multiple activities co-exist, are immanent, in any situation. Whereas one or more of these activity footings (e.g., school learning) may be relatively foregrounded at any one time, the background activities (e.g., of home, neighborhood, and work) do not disappear" (p.24). Moreover, Prior argues that co-participants might hold different "footings" in any given activity, and that they might differ in how this activity fits within their own learning histories (or in what other histories come to play in the given activity). Thus, from one of Prior's case studies, we are able to compare the "participation trajectories" (p. 99) of two international graduate students in a language research seminar, and to see how these students' differing levels of and attitudes toward participation in the seminar affected each student's appropriation of discipline-specific language in her writing.

Prior's in-depth analyses of literate activity in graduate seminars provides us with crucial insight into the negotiation strategies of individual graduate students with their professors and with larger institutional forces. What his research focus does not permit us to see, however, is how these students' previous educational experiences and larger
professional goals might influence their individual trajectories. That is, Prior (1998) offers very little history of his case study participants prior to their participation in these graduate seminars; therefore, we are able to see *that* students’ levels of participation in these graduate seminars differed, but we were not able to see *why* they differed.

Several studies in composition and ESL writing have built on Prior’s framework and/or have attempted to account for individual students’ learning histories and personal motivations. In Casanave’s (2002) case studies of academic writing, she adopted the metaphor of *game-playing* to describe the various ways students align themselves with members of their disciplinary community and learn the ‘rules’ of community participation. Tardy’s (2004a, 2009) study of academic genre learning accounted for how participants’ previous experiences with a genre affected how they approached a given academic task and how easily they adapted disciplinary conventions. Braine’s (2002) account of his own experiences as a nonnative-speaking graduate student in an English-medium university demonstrates that academic literacy involves more than just a student’s performance on an academic writing task—that academic literacy also requires international graduate students to “adapt smoothly to the linguistic and social milieu of their host environment and to the culture of academic departments and institutions” (p. 60). And finally, Simpson and Matsuda (2008) have posited learning as a “layered” experience—that professionalization within an academic discipline requires learners to actively synthesize knowledge accrued from various academic tasks and to appropriate “pieces” of experienced members’ identities, work habits, research interests, etc.

In short, these studies have laid an apt framework for understanding the interpenetrated role of individual and social factors on learning. However, much more
research is needed to understand and better conceptualize the dialectical unity of these domains, particularly in light of international graduate students’ experiences.

An Ecological Perspective on Advanced Academic Literacy Learning:

Thinking in Loops and Systems

I developed the three domains detailed above at a very early stage in this research project, and while they remain a useful way of describing relevant factors on international graduate students’ learning, my views evolved considerably as I delved into the data. In particular, I developed an appreciation for the complexity of the interrelationships between these domains. My early attempts to depict these interrelationships visually involved a Venn diagram with overlapping circles representing the three domains, and the learner positioned in the center where all three overlapped (see Figure 1.1). The problem with this representation—which I found early during my data analysis—is that while it acknowledges overlap between domains, it assumes too many situations in which one can neatly delineate a "cultural" factor as distinct from a "disciplinary" or a "personal" one. In reality, while it was clear such domains existed, the relationships between them were much more fluid, organic, and downright messy. I needed a model that better accounted for the interaction between these domains. Taking a cue from my research participants, each of whom researches ecology and/or complex systems in one way or another, I adopted the notion of ecology as a guiding metaphor for my study.

The notion of ecology, as Fleckenstein et al. (2008) argue in a recent CCC publication, is an apt metaphor for examining "the intersections of biological and social..."
systems” (p. 394). “Ecology,” they contend, “is predicated on the belief that biological and social worlds are jointly composed of a network of organisms and environments that are interdependent, diverse, and responsive to feedback” (p. 394). That is, an ecological perspective prompts us to view academic writing holistically, as a functioning system of interrelationships, thus providing a more richly detailed perspective on the interaction of a learner and her environment. Ecology, commonly defined as the study of the interaction between an organism and its environment, has a long history of use as a metaphor in
studies of literacy and education, though many of these uses have little in common other than the word itself.\footnote{In some cases, ecology is used very broadly to refer to general environmental or cultural factors on literacy or language use (Canagarajah, 2007; Prior et al., 2007; Selfe & Hawisher, 2004). Other cases, such as Enright-Villalva’s (2006) study of the literacies of high school bilingual students, make use of very specific adaptations of ecological concepts—in this case, Bronfenbrenner’s (2005) ecological model of human development, which is useful, yet is not as compatible with other ecological models. Bronfenbrenner’s (2005) adaptation of ecological concepts posed a system of nested factors contributing to human development: the \textit{microsystem} (e.g., the classroom), the \textit{mesosystem} (i.e., two Microsystems interacting with each other), the \textit{exosystem} (i.e., environmental factors), and the \textit{macrosystem} (i.e., larger cultural factors). This approach, while useful in some ways, shares some of the same limitations as my earlier delineation of the three domains relevant to student learning: while attempting to study interrelationships, it inevitably separates these domains from each other. See Rogoff (2003) for a critique of Bronfenbrenner’s model.} However, Barton’s (2007) \textit{Literacy: An Introduction to the Ecology of Written Language} and Syverson’s (1999) \textit{The Wealth of Reality: An Ecology of Composition} capture several very central concepts in ecological research with direct applications to studies of literacy. The first concept is the notion of ecological systems—whether natural or social—as \textit{complex systems} with numerous distinct yet intricately interrelated parts interacting with each other (Barton, 2007). The human body is a good example of a complex system: while there are distinct parts and organs which comprise the human body—a heart, lungs, blood, a brain—the human isn’t \textit{human} without the interaction of these parts. When all the parts work together, they form a person with very specific properties that don’t exist in any of the parts alone. Further, as Syverson (1999) indicates, the human is a \textit{self-organizing, adaptive system}, meaning that as humans and learners we are able to change ourselves, our thinking, or our view of the world based on our interaction with others and with our environment, which is itself a nested set of complex systems.

It is with this complexity in mind that I, again, took a cue from my research participants and adapted \textit{systems theory} for use in this project, a theoretical construct which many researchers in environmental studies and natural resource management use.
to explore the interaction of biological, economic, and social factors in complex environmental phenomena, and which is highly compatible with sociohistoric theories of learning and development. As a theoretical concept, systems theory and systems thinking provide a lens not only for mapping out and describing systems, but also, in cases of social or human systems, a framework for problem solving trouble spots in a system.

Systems theory also has a long and tortuous history, evolving as a confluence of research in cybernetics and engineering (Ashby, 1961; Bateson, 1972, 1979; Wiener, 1948), biology (von Bertalanffy, 1969), and management (Forrester, 1961, 1991). Since its inception, it has been adapted for use in numerous fields, including natural resource management (Meadows, Randers, & Meadows, 2004), business management and organizational learning (Haines, 2000; Senge, 1990), psychology (Levine & Fitzgerald, 1992), and educational systems design and experiential learning (Banathy, 1992; Banathy & Jenlink, 2001; Georgiou, Zahn, & Meira, 2008; Laszlo, 1969).

While systems approaches to research vary widely in methodology from field to field, as a theory they all share several basic assumptions about what systems are and how they behave.16 For example, systems approaches all share a theoretical focus on wholes rather than parts. As Laszlo (1996) articulates, in a manner not unlike Vygotsky's critique of developmental psychology in his day, academic research has long favored "atomistic" methods of inquiry; that is, researchers analyze complex phenomena by breaking them down into their component parts and examining these parts separately. Conversely, the systems approach entails examining phenomena holistically—as a

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16 Note: systems theory also shares these basic assumptions, and some of its origins, with complexity theory. To an outsider, the theories seem nearly identical and perfectly compatible, though proponents of either theory identify several key differences. For more, see Taylor (2001) and Johnson (2001).
functioning system\textsuperscript{17}—with \textit{emergent properties} which characterize the system as a whole but which don’t necessarily correspond to the various parts.

Checkland and Scholes (1990) offer the 1986 \textit{Challenger} disaster as an example of this concept. On one hand, they argue, there were specific mechanical causes for the explosion: joints sealed with O-rings which failed on take-off. However, they also indicate that political pressure to launch the shuttle before the president’s State of the Union address caused NASA to perform the launch in unprecedented freezing conditions. A further series of miscommunications prevented engineers’ warnings about the O-rings’ performance in these conditions from reaching people in administrative positions. Thus, the “cause” of the \textit{Challenger} disaster can not truly be linked to one factor; rather, it is the particular combination of factors—mechanical, political, administrative—which simultaneously contributed to the accident. These ideas of \textit{emergence} and \textit{emergent properties} are critical to a systems view (Georgiou, 2007; Senge, 1990),\textsuperscript{18} and they are something we see all the time in second language writing instruction: The problems students encounter writing a paper for publication—which requires much more than just a knowledge of language, but a knowledge of the discipline, its conventions, is valued rhetorical moves—might not manifest in a preparatory ESL class addressing language concerns alone.

\textsuperscript{17} I will use Meadows’ (2008) definition of a “system” in this study. “A system,” she writes, “is a set of things—people, cells, molecules, whatever—interconnected in such a way that they produce their own pattern of behavior over time” (p. 2). An important distinction to make: Saying that something is a \textit{system} is not the same as saying something is \textit{systematic}—the parts of a system do not need to work together well—i.e., systematically—in order to be interconnected.

\textsuperscript{18} Emergence, a critical concept in both systems and complexity theory, refers to patterns, properties, or characteristics that appear as a result of the interaction of components within a complex system. See Georgiou (2007) and Johnson (2001).
Also critical to a systems approach are feedback and feedback loops. Feedback, in a nutshell, is any information—positive or negative—that affects a system’s future behavior. In the case of an international graduate student learning to write for her discipline, we might be tempted to see “feedback” as referring specifically to the comments she receives from her advisor. Advisor feedback, however, is only one kind of feedback. Any information a learner uses to adjust his or her performance would be considered feedback: A rejected journal manuscript, a look of approval or confusion on a colleague’s face, or a quarrelsome questioner at an academic conference.

The concept of feedback becomes particularly important for researchers and administrators considering ways to interact with a system, as feedback sources are a good leverage point for systemic change, particularly when interacting with human systems. One can’t change or manage a person, but one can adjust the sort of feedback she receives, which, in effect, encourages her to adapt in response to the new information. Meadows (2008), for example, provides an example of a Dutch suburb in which all the houses were built identically, with the exception that some were built with an electric meter in the basement, while others had the electric meter in the main entryway. During an economic crunch in the ’70s, it was found that some houses used a third less electricity than other houses. Not surprisingly, the houses with meters in the main hallway where people could easily monitor electric use had the lower bills. There were no differences in the price of electricity or in the electrical systems, themselves—just a difference in the available information. The constant feedback residents received from looking at the
electricity meter and adjusting their usage formed a *feedback loop*—in this case, a *stabilizing feedback loop*\(^{19}\)—which moderated their use of electricity (p. 109).

While various iterations of systems theory share core principles, the *methodologies* for mapping, problem-solving, and (in some cases) predicting and changing systems’ behavior are legion, varying from discipline to discipline and from situation to situation. Social scientists using systems approaches (Banathy, 1992; Banathy & Jenlink, 2001; Checkland & Scholes, 1990; Georgiou, 2007; Georgiou et al., 2008) often divide these approaches into those designed for *hard systems* and for *soft systems*. So-called ‘hard systems’ methodologies are typically used for systems with more predictable, quantifiable cause-and-effect relationships and very often utilize computer modeling programs for mapping and studying a system’s dynamics. For example, Meadows, Randers, and Meadows’ (2004) *Limits to Growth*, a classic study of the interaction of human and environmental systems, uses World3 modeling software to present possible scenarios of the earth’s future given current rates of population growth, poverty rates, natural resource consumption, and pollution.

However, as Checkland and Scholes (1990) argue in *Soft Systems Methodology in Action*, systems involving human interaction—social systems or so-called “soft” systems—which are much harder (if impossible) to quantify and which have messier, much less predictable cause and effect relationships, often necessitate more qualitative methods and sets of heuristics for thinking through a system’s many interrelationships. The present study, I would argue, is a good candidate for such an approach. While there

\(^{19}\) Researchers in systems dynamics and systems thinking differentiate between “reinforcing” feedback loops—feedback that amplifies or continues a system’s current direction—and “balancing” or “stabilizing” feedback loops—feedback that opposes, changes, or regulates this direction. See Meadows (2008).
are numerous sets of heuristics for this process,\textsuperscript{20} Checkland and Scholes’ model is at least a good starting point for building a working model to guide the rest of our study.

The first step in thinking through soft systems is selecting a relevant system. "No human activity system," Checkland and Scholes (1990) argue, "is intrinsically relevant to any problem situation, the choice is always subjective" (p.31). For example, there are several different levels at which we can look at the experiences of international doctoral students navigating US university systems: We can look at this process at the level of the student or a set of students engaged in academic activity, or we can take a further step back and look more programmatical at how writing support is structured across the university. (We will do the former for the greater part of this study and lean toward the latter in the closing chapter).

After the system is selected, the system must be named or described, which one does by creating a "root definition" of the system, framed in terms of some transformation taking place. This process is typically depicted as some activity (in sociohistoric terms) that converts input to output. If, for example, we identify "writing an article for publication" as the activity being performed (as seen in Figure 1.2), the input

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure12.png}
\caption{A diagram of the main activity of a system, as seen by the conversion of input to output.}
\end{figure}

\textsuperscript{20} See Banathy and Jenlink (1992), Flood (1999), and Senge (1990) for other models.
would be the research project the student is working on and whatever knowledge or experience the article writer brings to this activity, and the output would be a paper which may or may not actually be published. Further, Checkland and Scholes introduce the “CATWOE” heuristic for fleshing out the major components of the system:

- **“C”**—The *Customers*, or those who are affected by the activity (e.g., the article writer’s field, department, colleagues, etc.)
- **“A”**—The *Actor*, or those who engage in the activity (e.g., the article writer, her research partners, etc.)
- **“T”**—The *Transformation* process or activity (i.e., writing an article for publication)
- **“W”**—*Weltanschauung*, or the worldview relevant to the activity (e.g., the importance in academia of publishing in well-cited journals, etc.)
- **“O”**—*Owners*, or people who can stop or hinder the activity (e.g., journal reviewers, advisors [possibly], etc.)
- **“E”**—*Environmental Constraints*, or outside factors affecting the performance of this activity.

After defining the system and reflecting further on the social and political relationships involved, one creates the first of a series of “rich pictures” or models expressing these relationships, which is then compared to the “real world” situation, discussed with colleagues or co-workers, revised, and so on. For humanities scholars—and particularly for composition scholars familiar with our field’s response to Flower and Hayes’ (1981) cognitive model of the writing process—the notion of “models” or
“diagrams” can be unsettling. However, we must keep several things in mind. While publishing such rich pictures gives them a sense of finality, the act of producing them (even the rich pictures in this study) is intended to be part of the process of thinking through these interrelationships, not a finished representation of them. These pictures are simply a tool for thinking about interrelationships within a system. Further, as Meadows (2008) and many others have warned, “all systems diagrams are simplifications of the real world. We each choose how much complexity to look at” (28). Such rich pictures, as we will see in chapter 6 of this study, provide a convenient, visual way of thinking through complexity.

In Figure 1.3, I have provided a rich picture of a “learning system” which I will use as an orienting framework for presenting my case studies. Consistent with both sociohistoric studies of learning and with systems theory, the center of the diagram is the particular activity or transformation being studied (e.g., writing a paper for publication, defending a dissertation prospectus, etc.). The focus on a specific activity allows researchers to see how various factors on learning interact. Significant to note is the text in the upper left-hand corner of the diagram—“geopolitical/cultural context—as this context frames the entire activity. If we are looking at a graduate student writing for publication in English-medium journals, for example, every interaction between the student and her sources of feedback is inevitably framed by the geopolitics of publishing internationally.

The box to the left indicates the learner’s individual learning trajectory. These are the past academic experiences and social encounters which inform the learner’s identity as a researcher entering into this activity. Note that while I have labeled this an
"individual" trajectory, the items which comprise it—previous academic experiences, experiences with academic English, experience with academic genres etc.—are largely cultural and/or disciplinary in nature. The boxes attached to the main activity are the various sources of feedback the learner receives on her activity—from advisors, colleagues, journal reviewers, etc—and while much of this feedback might occur within the context of the academic discipline, they are, again, framed and influenced by any number of larger cultural or political factors, some of which might not even be immediately apparent to those involved in the activity. Most important to note (to the right of the diagram), the experience the learner walks away with—regardless of whether

![Geopolitical/Cultural Context](image)

Figure 1.3. A rich picture of a learning system, where geopolitical/cultural, disciplinary, and personal factors of learning are distributed throughout the system.
the outcome is positive or negative—feeds back into her identity as a researcher, inevitably altering how she engages in such activities in the future. Thus, the learning process is dynamic and iterative, and this model inevitably changes and evolves each time the learner enters another activity. Not to mention, this model’s configurations change from participant to participant, as not every learner approaches academic activity with the same previous learning trajectory, nor do different learners necessarily receive the same type of feedback.

Comparing this picture to the Venn diagram produced earlier, we see a significant difference: the geopolitical/cultural, disciplinary, and individual domains are not separated as they were originally; rather, they are interspersed throughout the diagram, each domain permeating the entire system. Thus, the learner is negotiating each of these domains at each step in the learning process.

**Toward a Systems View of Participatory Learning, or Learners in the Network**

In the previous sections, I described the sociohistoric theories of learning and systems theory, two theoretical traditions that complement each other well. Sociohistoric theories of learning and development provide a useful analytic perspective on learning as situated in a learner’s participation within a community of practice or activity system, while systems theory provides a way to conceptualize the complex negotiations inherent in this process. Further, systems theory and systems thinking bring to sociohistoric theories of learning a framework for problem-solving which can be useful for researchers and writing program administrators considering how writing support mechanisms can best fit within graduate students’ existing support networks and busy academic lives.
From a research standpoint, my study serves to synthesize the current research on the geopolitics of academic writing (Canagarajah, 2002a, 2002b, 2006a, 2007; Swales, 1997, 2004; Tardy, 2004b) and the enculturation of multilingual writers into academic disciplines (Casanave, 2002; Casanave & Li, 2008; Prior, 1998), thus providing a more holistic portrait of these students’ experiences in US institutions. More pragmatically speaking, I hope for this project to prod writing teachers, writing program administrators, and other university faculty beyond their current conceptions of what university writing support can (or should) look like, and who should be responsible for providing it.

Currently, our kneejerk reaction within universities when faced with a pressing student need is to think about what classes we can offer, as that is the default way in which most university systems work. Such an approach, however, assumes a very compartmentalized version of learning which fits the compartmentalized nature of the university, but which might not fit the highly integrated nature of our students’ learning processes. The question we should be asking is how we can enable international graduate students to become more sustainable learners conscious of the many factors influencing their learning processes, and aware of the types of opportunities that could benefit their development as professionals in their fields of study.

On a more personal note, I envision this study as a “call-to-arms” for composition studies, which I believe has the tools and the resources to assist international graduate students. However, as Matsuda (1998, 1999, 2006) has indicated on numerous occasions, composition studies has yet to adopt issues of language diversity as a primary concern, despite the increasing number of multilingual students in American universities. Moreover, as Russell (1991) and Rose and McClafferty (2001) have indicated, writing
studies has also historically seen undergraduate writing instruction as its primary interest, despite the difficulty and importance of graduate level writing. Thus, even with their growing numbers in American universities, international, NNES graduate students are a doubly-neglected population in our field. This project, I hope, will bring more awareness of this population to composition studies and indicate ways our field might better account for these students in our research and practice.

In the following chapters, I will flesh out the rich picture of the learning system described earlier through narratives of the stories and experiences of five international doctoral students in an interdisciplinary environmental sciences program. While it might seem antithetical to the systems view—which attempts to look at “wholes” over “parts”—I will start by exploring the various parts of the learning system, which is necessary given that each of these parts can, in fact, be seen as a sub-system of its own. After providing an overview of my research methodology in chapter 2, I will spend chapter 3 exploring participants’ individual learning trajectories through the lens of identity. I argue that identity is more than just a learner’s sense of self, but a rich system of experiences which learners use to navigate future academic activities. In chapter 4, I look more closely at the iterative processes by which two oceanography students engaged in academic activity interpret, synthesize, and use feedback from their advisors, with particular attention to how they learn to take ownership of their work and ideas. In chapter 5, I will put these pieces together in a case study of a Brazilian student—Paulo—revising portions of his master’s thesis for publication in a scholarly journal. Particularly

21 Consistent with Matsuda’s (1999) “disciplinary division of labor,” a large body of work on NNES graduate students exist in the fields of second language writing and English for academic purposes (Casanave, 2002; Swales, 2004; Tardy, 2004a, 2004b, 2005, 2009). However, very little of this research has been integrated into “mainstream” composition research.
important to Paulo's case is that unlike the two oceanography students—who each received substantial feedback from their advisors—Paulo received very little, forcing him to rely on a more distributed network of feedback sources. In the final chapter, I will step back a bit and look more broadly at what implications these in-depth portraits of student learning have for how we conceptualize university writing support, and what systemic changes might be necessarily in light of the increased globalization of higher education.
CHAPTER II

A SITUATED, QUALITATIVE APPROACH TO STUDYING MULTILINGUAL WRITERS IN THE ENVIRONMENTAL SCIENCES

This situated, qualitative case study examines five international doctoral students learning discipline-specific academic literacies in an interdisciplinary environmental studies program (IES) at Northeastern Land Grant University (NLGU). More specifically, this study draws from sociohistoric theories of learning and development in the Vygotskian tradition (Lave & Wenger, 1991; Rogoff, 1990, 1995, 2003; Vygotsky, 1978, 1986; Wenger, 1998) and systems theory or systems thinking (Checkland & Scholes, 1990; Laszlo, 1996; Meadows, 2008; Senge, 1990) to examine more holistically the processes by which non native English-speaking students in this program negotiate their own cultural, professional, and academic objectives with mentors, faculty members, and colleagues. This ecological lens on advanced academic literacy learning is not only a robust framework for researching the experiences of international students in US institutions, but it also suggests ways both instructors and writing program administrators can make more efficient use of departmental and university resources to better meet these students' needs.

This study does not aim to provide an exhaustive list of practical tips for working with multilingual graduate students, though teachers and administrators might find much of this study's content to be very practical, in that it allows them to reflect on their own practices and their own assumptions about advanced academic literacy learning. Rather,
my goal is to take a step back and examine how students, in the absence of systematic graduate-level writing support, learn academic practice in their fields. The systems framework then functions as a tool for painting a complex portrait of this process and for considering ways of better interacting with it. The goal is to help international graduate students become more self-aware, sustainable learners, and to encourage university departments to see these students’ success as a shared responsibility. My research has been guided by the following overarching research questions:

- In what ways must non-native English speaking international students in this program negotiate their own academic, professional, and personal objectives with those of their professors and colleagues in a largely US-based research context?
- What previous experiences do these students have using English for academic purposes, and how does this affect their investment using English academically at a US university and the development of their professional identities?
- What previous academic experiences do these students bring to writing tasks at an American university, and how do these experiences aid and/or complicate academic writing in English?
- In what ways do students construct a sense of the discipline they are entering, and how does this sense of disciplinary practice affect their particular learning trajectories and professional development in their fields of study?
- To what extent, and in what ways, are cultural, disciplinary, and individual factors on student learning interrelated, and what do these interrelationships suggest about the design of university writing support?
Data collection for this study lasted approximately 17 months, with the bulk of the data collection occurring between March 2008 and January 2009. Data collection consisted of three semi-structured interviews with each case study participant, analyses of participants’ writing, observations of students engaged in academic activities (e.g., defending dissertation proposals, writing for publication, etc.), and interviews with participants’ advisors and other program faculty. Interview data were transcribed and coded for emergent themes using Atlas.ti qualitative coding software. Further, revisions over multiple drafts of students’ writing were traced and triangulated with interview data.

In the following sections, I describe the research design, the research setting and case study participants, and the method of collecting and analyzing data.

**A Sociohistoric Approach to Writing Research: Some Methodological Concerns**

As mentioned in chapter 1, this study follows a rich tradition of sociohistoric research on writing in the academic disciplines (Berkenkotter et al., 1991, 1995; Russell, 1995; Russell & Yanez, 2002); writing for academic publication, both in US and overseas contexts (Blakeslee, 1997; Ding, 2008; Flowerdew, 2000; Li, 2006a, 2006b); workplace writing (Beaufort, 2000; Cox, 2006; Dias et al., 1999; Dias & Pare, 2000); and second language writing (Casanave, 2002; Prior, 1998, 2001). Like other sociohistoric studies of literacy in composition studies and second language writing, this study posits literacy learning as situated within particular disciplinary practices—as something one learns gradually through increased peripheral participation within an academic community of practice (Lave & Wenger, 1991; Wenger, 1998).

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22 While the data collection for the entire study lasted 17 months, the data collection for individual participants did not last this long. Interviews and observations were staggered so as not to occur simultaneously.
Also, like other sociohistoric research, this study posits “activity” as the analytic unit by which to explore the interpenetrated roles of individual and social factors on learning. A methodological concern in researching learning as such, however, is defining what constitutes “activity” and determining an appropriate setting in which to study participants engaging in it. Particularly in studies of graduate student writing, some studies have focused their analysis (at least initially) on academic tasks completed in graduate seminars in the disciplines and/or in English or EAP classes (Prior, 1998; Tardy, 2004a, 2009). On the one hand, this focus is both a convenient way of selecting study participants and an appropriate way of studying literate activity in one particular site—and a crucial site at that. Tardy’s (2004a, 2009) research, for example, examines the effectiveness of genre instruction in EAP classes, and so in her case, the classroom was the most appropriate starting point. On the other hand, focusing on classroom-related literate activities might constrain the sort of literacy experiences one can access. With graduate students, learning experiences are likely to be distributed across a variety of settings—from formal class meetings and lab activities, to informal “bull” sessions with colleagues and fellow students over a cup of coffee. Not to mention, as I found through speaking with my participants, the rules of the academic game change drastically once they finish their coursework and start their dissertation research: the writing becomes much more complex and much higher-stakes, the learning curve steepens considerably, and the amount of support they receive—particularly from other students—decreases dramatically.

In designing this study, I took up the charge Prior offers in his more recent research (Prior & Shipka, 2002) to identify and study sites of literate activity outside the
classroom. The natural dilemma with this approach is that the actual sites for research and observations were much more spread out. Preliminary observations of sites within the IES program (e.g., labs, student-lead seminars) allowed me to identify possible sites of academic activity for analysis, though some sites are more self-contained than others. For example, observing a dissertation proposal defense is easier than observing a participant revise a paper for publication; one can view the first of these two events in its entirety, but one can only experience pieces of the second. While I did observe participants in their preferred work spaces when possible, it was still necessary for participants to reconstruct much of their writing processes in text-based interviews, an admittedly limited but still insightful window into their experiences.

As Atkinson (2005) argues, situated qualitative research can be messy at times; capturing and explaining human behavior in context requires a great deal of flexibility on the part of the researcher. I started this project with a robust research plan which did serve as an apt framework for collecting and analyzing data. However, I found very early in my study that the lives, schedules, and circumstances of graduate students did not always fit neatly with my original plans. In one participant’s case, as I explain later, circumstances caused me to adjust her interviewing schedule considerably, stretching it out over the course of a year rather than the planned three-week period. Because this adjustment affected the continuity of her interviews, I did not rely as heavily on data from her case as from other participants. However, adjusting the time frame for her interviews had the advantage in that it allowed me to interview her before, during, and after her data collection in Colombia, which was a unique opportunity. The second interview occurred via Skype while she was in Colombia, and considering she had spent the previous few
months speaking nothing but Spanish, this interview provided an interesting window into her insecurities about using English academically.

**Research Setting**

This study takes place in an Interdisciplinary Environmental Studies program at Northeastern Land Grant University, a mid-sized, Level 2 research institute with approximately 15,000 students, undergraduate and postgraduate. A land, sea, and space grant university, NLGU is well-situated geographically for research in the environmental sciences and natural resource management; NLGU stands only 15 minutes from the seacoast and within striking distance of dense secondary forests, grand mountains, and sprawling wetlands and salt marshes. NLGU faculty receive significant research funding from federal agencies such as the National Oceanic and Atmospheric Administration (NOAA) and the National Aeronautics and Space Administration (NASA) and collaborate on numerous multi-institutional research efforts studying climate change and air quality, ocean mapping, and space sciences.

NLGU, by reputation, has a fairly homogenous student population (about 77% white, non-Hispanic), and draws most of its undergraduate population from the northeastern United States, particularly New England. The undergraduate international student population is fairly small, though the graduate student population is more substantial (260, or 11% of the graduate population). At the time data collection for the study started, the NLGU Department of Institutional Research reported that there were 13 international students in the IES doctoral program, which is a little more than 20% of the
total program enrollment.\textsuperscript{23} The program director’s initial international student tally was more than Institutional Research’s—16, or 26% of the total program enrollment—as she did not limit her count to students on F-1 student visas.

The IES doctoral program was founded in 1990 and, over the course of this study, has enrolled approximately 60 students per year, making it one of the largest doctoral programs at NLGU. According to Jack, professor of natural resources and the program’s founding coordinator, the program started as a partnership between the Institute of Earth, Oceans, and Space and the Natural Resources Department, though it grew to include other disciplines on campus. The goal of the program, as explained to me by numerous faculty members, is to encourage multi-disciplinary approaches to pressing environmental problems, which are often too complex and multi-faceted to be addressed within the confines of any one discipline. Students in the program pursue research projects on everything from hydrology, oceanography, and atmospheric chemistry to natural resource management and environmental policy, and often blend research methods from both the natural and social sciences. Many program faculty are internationally known and are tapped by influential government agencies to consult on environmental policy. One former faculty member served on the Nobel Prize-winning Intergovernmental Panel on Climate Change, while another was recently appointed as one of President Barack Obama’s environmental policy advisors.

IES is not a department with a centralized faculty and location, but a partnership of departments and research groups with often distinct disciplinary identities, spread out in buildings across campus. Many of these research groups are housed in wings of the

\textsuperscript{23} General statistics on NLGU student populations came from the NLGU Institutional Research website. Statistics on program enrollment came directly from Institutional Research employees.
Earth Science Building (ESB) in the campus center. Ocean Mapping, however, resides in the state-of-the-art Center for Ocean Mapping (COM) building on the west edge of campus. The Natural Resource Department had been housed in “Johnson Hall,” one of the older buildings on campus. Due to renovations to Johnson Hall, however, most of the Natural Resources offices were temporarily relocated to “Nelson Hall.” Several of my interviews with Natural Resources faculty were conducted in temporary offices packed with cardboard boxes. The main IES office had originally been housed in yet another building, though it was moved into Nelson Hall temporarily along with much of the Natural Resource Department. The program also has affiliate faculty in an array of campus departments: history, economics, philosophy, etc. In many ways, the decentered and transient nature of physical office space within the IES program echoes the structure of the program itself: rhyzomatic, constantly in flux, yet still somehow highly functional and efficient.

Students’ projects vary considerably in the degree to which they are interdisciplinary. All students are required to take courses outside their research focus and to have interdisciplinary dissertation committees (i.e., at least one member needs to be from a different discipline). However, the extent to which they actually work with students and faculty from other fields within IES depends on the individual students or their advisors. Some fields, such as atmospheric chemistry and ocean mapping, tend to be self-contained, and students spend most of their time working with faculty and students within their research area. In other cases, students might stay mostly within their research area but take classes in other departments to supplement their disciplinary knowledge. For example, Girmit, a case study participant studying physical oceanography, took
several fluid dynamics courses in the Mechanical Engineering Department and invited two engineering faculty members to serve on his dissertation committee. Some student projects, however, are highly interdisciplinary. “Susan,” one of the first students to come through the program and a pastor at a nearby church, researched sustainability initiatives within religious communities, a project which drew from ecology, philosophy, theology, and education. In theory, a lot can go wrong when working with such diverse dissertation committees, though most students have reported having very few logistical problems navigating these differing disciplinary communities. The program’s administrative architecture is sound, and the faculty are very open to differing perspectives and approaches. However, students I interviewed did report having difficulty navigating the differing disciplinary cultures, though this might be an inevitable part of learning in an interdisciplinary program.

This program was chosen as the primary research setting for a number of reasons. First, while the IES program might not have as many international students as other programs such as business (which had 51 international students at the start of this study), it does still have a significant number of non-native English speaking international students and has a considerable international draw.24 Second, I had already established rapport with the program, as I had worked with several of its students prior to starting this study. In addition, I had spent time onsite in labs and offices and knew the general culture of the program. Finally, and most importantly, the interdisciplinary nature of the program provided a clear window into the processes of students negotiating both national and

24 According to Institutional Research, IES had 13 international graduate students at the beginning of data collection, which was slightly less than computer sciences (23) and math (22), but comparable to chemistry (17), civil engineering (12) and mechanical engineering (12). The high number of international students in business is attributable to the cooperative MOT program between the Business School and several Korean institutions and corporations.
disciplinary cultures simultaneously, and allowed me to observe this process in contexts with varying degrees of interdisciplinarity.

**Case Study Participants**

**Participant Recruitment**

With the permission and the assistance of the IES program director and the assistant dean of the graduate school (who is the default “head” of IES), I sent a recruitment e-mail to all international students in the program. Because the names and e-mails of students in the IES program are published on the program’s website, I was able to contact potential participants directly. The assistant dean and program director—after consulting with the Office of Sponsored Research—supplied a list of international students. Also, snowball sampling was used, as students interested in the study passed my e-mail on to other students in the program.

I selected non native English-speaking doctoral students in the later stages of the IES program (i.e., at least finished with coursework) who identified as international students.\(^\text{25}\) Potential participants also needed to be continuing as students at NLGU for the duration of this study. One potential participant was excluded from the study, as he was considering transferring to another university within the year. Ideally, participants would come from a variety of language and research backgrounds, and to an extent, this goal was achieved. I ended up with two Brazilian students in this study, but since they

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\(^{25}\) Initially, I was looking exclusively for students on an international student visa but found that many students who identified as “international students”—as opposed to resident multilingual students—had found alternate means of securing permission to study in the US other than an F-1 student visa. For the sake of students’ privacy, I will not provide details on these alternate means, though I will verify that all participants have legal documentation.
differed dramatically in their research perspectives and their socio-economic backgrounds, I felt justified in keeping both participants.

Below are brief bios of the case study participants. For the reader’s convenience, I have included relevant participant background information in chapters 3, 4, and 5, as well.

_Gabi_

Gabi is a Brazilian woman in her mid-thirties researching water management strategies for the Saô Francisco River in Brazil—the “River of National Unity,” as she refers to it in her dissertation. Gabi grew up in a poor, black family in Salvador, Brazil. Her trajectory from Brazil to the IES program at NLGU is both serendipitous and inspiring. With the help of her mother—who worked countless hours at a local hospital to put Gabi and her sister through school—Gabi completed a degree in economics at a Brazilian college and secured a job as a translator at a Brazilian bank. It was while working at this bank that she met Don, an economics professor at NLGU, who happened into the bank while conducting research in Brazil. Gabi and Don entered into a relationship that was both professional—Gabi served as a translator for Don’s research—and personal—Gabi and Don became romantically involved. Believing she had a better chance of entering into a graduate program in the US than in Brazil, Gabi came to the US with Don’s assistance, completed a master’s degree in Natural Resources (with a focus on Water management), and was working on her doctorate at the time of this study.26

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26 Gabi’s initial application for an F-1 international student visa was denied, and so Don, with the help of a history professor fluent in Portuguese, worked out an alternate visa route with the US consulate in Rio de Janeiro.
By all accounts, Gabi was fairly proficient in basic communicative English by the time she started her doctoral studies, though she struggled to learn the conventions of academic writing in English and the ways these conventions differed from discipline to discipline. As I will discuss in chapter 3, Gabi identifies strongly with the "social sciences" and often feels marginalized in a program where most students and faculty came from backgrounds in ecology and the natural sciences (the "hard sciences," as Gabi calls them). Her dissertation committee comprises professors from history, political science and environmental policy, and natural resources. Her committee's different backgrounds and orientations often lead to conflicting writerly advice, putting her in the position of choosing which advice to take. Much of her decision-making on how she writes and where she publishes is guided by her own goal of returning to Brazil to work, which is made more difficult by the fact that she has very little contact with Brazilian research circles (which, by her description, can be both territorial and exclusive), and has an interdisciplinary degree, which is often a difficult fit in Brazilian universities with more traditional divisions between academic disciplines.

At the time of this study, Gabi had already completed her coursework and exams and had conducted the fieldwork for her dissertation. She was in the thick of transcribing and analyzing reams of interview data (conducted mostly in Portuguese) and writing pieces of her dissertation and articles for publication. She described feeling isolated from her peers at this stage of her research. She recalled spending a lot of time in her advisor's lab in Johnson Hall while completing her coursework and had entered into several very close relationships with her lab mates. However, due to renovations on campus, the lab and her advisor's office were relocated to Nelson Hall while she was away in Brazil. She
admitted to spending less time in the lab after completing her coursework, and now that the lab has moved, she has only been there once, very briefly. Further, Gabi’s advisor, Julie, mentioned that Gabi was bringing less process writing to her now that she had started the dissertation and wished Gabi would come more often for feedback. However, Gabi, fiercely independent, fears she had given her advisor too much to read while writing her master’s thesis and wants to bring in work only that is near completion. She is torn: she feels very isolated, but she also believes she works best on her own.

Gabi’s interviews were conducted over a three-week period in August 2008. We also conducted a follow-up interview in the Fall of 2009 to discuss an article she had published in a Brazilian journal and to discuss her progress on her dissertation.

Salman

Salman, a Pakistani man in his early thirties and a native speaker of Urdu, researches sonar technology necessary for ocean mapping. More specifically, he studies methods for reducing uncertainty in “backscatter,” a technical term for sound waves that have bounced off the ocean floor and are collected and analyzed by sonar technicians. Salman received his bachelor’s degree in oceanography from a university in Pakistan before coming to the US in 2002 to join his family, many of whom lived in Philadelphia. After arriving in the US, Salman researched ocean mapping programs and decided to enter the program at NLGU. Salman worked with the same advisor—Bill—for both his master’s and his doctorate.

Salman differs from other participants in several key ways. He has significantly more family responsibilities than other participants. He lives with his wife, his newborn
baby, and his parents. As a result, Salman tends to have a much more pragmatic perspective on his professional goals than other participants: he is looking for a good job that will support his family. These family responsibilities were in part why he took a job working on a NOAA charter vessel while writing his dissertation; he simply could not support a new baby on a graduate student’s salary. This last point leads to another critical difference: while Salman identifies as an “international” student, he does not have an F-1 international student visa. He initially came to the US as a refugee and has since taken steps toward becoming a citizen. Salman plans to remain in the US after graduating and work as a NOAA researcher.27

As I will discuss further in chapter 4, Salman used English as an academic language for most of his schooling, though he did not feel comfortable with his English proficiency. Like Ana, he worried constantly that he was not being understood, causing him to overcompensate in his writing. Salman usually starts with very long drafts containing far too much information, which he whittles down over the course of numerous revisions. Initial drafts of his dissertation proposal, for example, were 67 pages, while the finished version was closer to 30.

Salman works in a very supportive lab environment but does not often go to his colleagues with questions about his work. Like Gabi, he feels isolated, especially since his family duties keep him from spending too much time in the office. Salman has the best lab space out of all the participants, though. The main room is a web of cubicles large enough to house 20 to 30 graduate students, flanked on one side by faculty offices. Salman and his colleagues have a large break room—complete with couches, café-style

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27 As a NOAA researcher, Salman would be working for a federal agency, thus requiring him to procure citizenship.
tables, a brand-new, Keurig single-serve coffee brewer, and a wide selection of Green Mountain coffee flavors in prepackaged, single serve cups—and a large conference room, where Salman and his lab mates hold periodic, student-lead seminars to discuss their research.

At the time of this study, Salman was working on his dissertation proposal. We conducted two interviews in summer 2008 following the sequence outlined in the data collection section, but held off until the Spring 2009 for the third interview (i.e., after he had defended his dissertation).

**Paulo**

Paulo, a Brazilian man in his early thirties and a native Portuguese speaker, researches causes of deforestation in the Brazilian Amazon. More specifically, Paulo’s research utilizes remote sensing technology—i.e., satellite images of the Amazon—to track deforestation, which he then verifies through extensive fieldwork, soil analysis, etc. (what is known as *ground truth data* in his field). Paulo is not new to his field, though he has conducted much of his academic research in Brazilian settings, and often in his native language. Paulo completed his master’s degree at a Brazilian university and had already collected much of his dissertation data before coming to the US for his doctoral work. Paulo met his current advisor from NLGU—Rob—while conducting research for his Master’s thesis. Rob, who held a dual appointment with NLGU and the USDA Forest Service, coordinated a NASA-sponsored international research effort in the Amazon. Unlike the other participants, Paulo has not yet decided whether he will return to Brazil after finishing his degree or find an academic post elsewhere. He is considering pursuing
a post-doctorate in Europe, thus giving him yet another perspective on his field and on academic writing conventions.

Paulo is a very serious researcher who comes to NLGU with considerable experience in his field. He was already starting to publish from his dissertation data. He had published a short article in a remote sensing journal and was at work on a second article with his advisor at the time this research began. (This article, which was sent out to one of the most well-cited environmental journals in his field, was initially rejected). Paulo was also starting to translate some of the data from his master’s thesis for publication in English-language journals (which is the subject of chapter 5). Despite his experience in the field, Paulo admits that he stills struggles with academic writing conventions—particularly those common in US academic contexts—and while he is not as self-conscious about his language proficiency as Salman and Ana are, he does admit that language is often an obstacle when communicating. In particular, he feels that he has a very “technical” English vocabulary—that much of his language learning has occurred within the context of his academic discipline, and that he often struggles when reading or discussing more everyday matters.

Out of all the participants, Paulo has the least contact with other students in his lab, and he reports feeling very isolated, which was much different from his experiences at his Brazilian university. During the summer when we conducted these interviews, I never saw anyone but Paulo in the shared, student office space in the Earth Sciences Building. He sat alone in a cubicle in the back corner of the office. Usually, his desk was piled with papers, his wall covered with Landsat images of the Amazon, his dual, flat-screen monitors filled with equations, charts, and diagrams. During the school year, there
were generally other students working in the cubicles around him, and while Paulo mentioned being very close friends with a lot of these other students, Paulo lamented that they rarely talked to each other about research problems. Americans, he claimed, had a very “individualist” perspective; whereas in Brazil, he would often seek other students’ counsel when faced with a procedure with which he was not familiar. Paulo was also cut off from his advisor, Rob, who had left NLGU for a post at another university.

At the time of this study, Paulo was working on his dissertation and preparing for another trip to Brazil to conduct fieldwork. The interviews were conducted over a three-week period in July 2008. Further, I checked in with him throughout the following year to check on the status of two articles he was revising for publication.

**Girmit**

Girmit is an Indo-Fijian man in his late twenties studying physical oceanography. Girmit’s dissertation research uses computer modeling programs to study the circulation and temperatures of waters in the Chesapeake Bay. Girmit’s first language is Hindi, though he has been speaking Hindi and English interchangeably for as long as he can remember. Further, English has been his primary academic language throughout his education. While Girmit does not have the same concerns acquiring English as a second language as other participants in this study, his case foregrounds the *cultural* nature of acquiring advanced academic literacy. Girmit completed his bachelor’s and master’s degrees in Fiji and plans to find a teaching position somewhere in the South Pacific after finishing his degree.
Girmit comes from a family of educators and decided early in his academic life that he would teach, as well. He is exceedingly bright, though by nature passive and soft-spoken. His account of his educational experiences is peppered with fateful events beyond his control. When discussing these experiences, he simply smiles and shrugs; he has learned to roll with the punches, so to speak. His undergraduate program in math and physics, he recalled, was interrupted briefly by one of Fiji’s recent political coups. During his graduate education, a feud erupted among several professors in his department, resulting in friction among students and faculty members and limiting his options in choosing a thesis committee. Even his decision to study at NLGU was cast as a chance encounter. “There wasn’t actually a particular reason [for coming to NLGU],” he admitted. “It was more like go with the flow.” Acting on a recommendation from a friend who studied ocean mapping at NLGU, Girmit searched NLGU’s website. “So I was looking through the Internet,” he said, “and I found my professor’s name, and he had this one line at the bottom that says, I need a grad student. If you are interested, please e-mail me. So I e-mailed him, and he said yea.”

Girmit had just finished his exams when these interviews were conducted and was beginning work on his dissertation proposal. While Girmit is just as far along in his degree program as other participants, he often characterizes himself as being new to his field and inexperienced, or at least he does not seem as confident about his disciplinary knowledge. Since Girmit belonged to a new research group, he was the first of his cohort to go through all the major stages in the doctoral program, and so he had no one ahead of him to provide advice on taking exams or writing a prospectus. He was the model for others in his research group. So he felt much less confident about his performance.
However, Girmit benefits from having a very close one-on-one relationship with his advisor, John, the closest mentoring relationship of all participants in this study. While Girmit and John’s personalities differ in very interesting ways (as described in chapter 4), Girmit receives extensive advisor feedback on his conference presentations and his writing.

Girmit’s lab is also located in the Earth Sciences Building, though he admits to spending little time there, particularly in the summer when the air conditioning is on full blast. Girmit, who lives in a graduate student dormitory comprising a large international student population, works most often in his dorm room.

Girmit’s interviews were conducted over a three-week period in June 2008 in the lobby of the graduate student dormitory. I also corresponded with him frequently throughout the year to follow his progress on his dissertation proposal and attended his proposal defense.

Ana

Because circumstances interfered with the continuity of Ana’s interviews, I do not use data from her case as heavily as I use data from the others. There is no chapter devoted to her story. However, since her story does present an interesting contrast to the other four participants’, I use her case selectively throughout the dissertation to emphasize the range of experiences participants have had.

Ana is a Colombian woman in her early thirties studying fisheries management. She previously completed the equivalent of a bachelor’s degree in marine biology at a
Colombian university.\textsuperscript{28} Ana’s dissertation research proposes a plan to help small, artisanal fishing communities in Colombia develop more sustainable fishing practices, and it pulls more from qualitative research methodology, which is fairly new territory for her. Ana differs from other participants in this study in that she holds a position in a biology department at a small university in a Colombian coastal town. She received the opportunity to pursue a doctorate at an American university through a fellowship from a philanthropic organization and struck a deal with her current university: she is obligated to serve two years at her current university for every one year spent in the States.\textsuperscript{29}

Ana is very passionate when speaking about her research, and she sees herself as potentially serving a critical role as mediator both between Colombian and US-based research circles and between nature and humankind. While she believes her previous work in marine biology served as a critical framework for her current research pursuits, she could not see herself continuing in that line of work indefinitely. “I was working with dead fish,” she told me on multiple occasions. “I don’t want to spend all my life in a lab working with dead fish and smelling alcohol.” Instead, Ana grew increasingly interested in the lives of people in Colombian coastal villages who depended on fishing for their livelihood. This interest would eventually put her directly in contact with these communities during her fieldwork, at times standing shoulder-to-shoulder with them hauling nets of captured fish onto the pearl-white Caribbean beaches. “In research […], we lose sometimes the path, because we sometimes fail in that giving too much

\textsuperscript{28} Currently, very few Colombian schools offer master’s degrees. Ana received special permission to enter the program at NLGU without a master’s, though she was required to take additional coursework.

\textsuperscript{29} Campbell (2007) reports in \textit{The Chronicle of Higher Education} that such arrangements have been very common in Central and South American institutions looking to raise accreditation standards and develop graduate programs. Ana’s sponsoring organization—unnamed in this study—helps researchers from Colombia receive doctorates and requires them to have an affiliation with a Colombian institution.
importance of publishing and the journals,” she remarked. “But you forget what is really your mission as biologist. […] We represent the nature. The nature cannot talk. But we represent the nature. And we have a mission to really help the transition between people and nature."

Ana works with Danny, a well-respected fisheries management researcher and environmental policy consultant who was just recently asked to serve as one of President Barack Obama’s environmental policy advisors. Because of Danny’s busy schedule, he relies on students in his lab to meet regularly and help each other prepare for presentations, problem-solve research mishaps, etc. For the most part, Danny’s lab is very cordial, and Ana has a good community of colleagues. The lab itself is a dank, three-room, windowless space, though it bristles with energy at all times of the year. The main room contains a large, conference-style table used both for departmental meetings and banquets. I watched Ana present in this room twice: the first was a practice dissertation proposal defense, and the second was a slide-show presentation of her fieldwork in Colombia (which, as it happens, served as a pretense for Danny’s surprise send-off party). In an adjoining room is a network of cubicles where most of the doctoral students work, though extreme temperature variations in this room (i.e., too hot in the summer, too cold in the winter) often force students to work elsewhere. Despite this community, Ana confessed that she spends little time discussing her research with her office mates, with the exception of another international student from Italy. Mostly, she relies on feedback from Danny, which would now be in short supply due to his other obligations.

Out of all the participants, Ana is least confident in her use of academic English. Before coming to NLGU, she had the opportunity to collaborate on articles with two
Smithsonian researchers. However, she minimized the amount of actual writing she had done, even though she was listed as first author on one article. As part of the fellowship that brought her to NLGU, she was enrolled in English courses in Arkansas, which she felt were not very effective; further, upon being accepted at NLGU, she was asked to take an ESL course for graduate students, which she felt helped with her oral proficiency but did not help with her academic writing. As I will discuss in chapter 3, Ana is often overly conscious of her language usage and overly concerned that she is not communicating effectively. She found our second interview particularly difficult. For various logistical reasons, we conducted her second interview via Skype while she was conducting fieldwork in Colombia. She confessed that she had been speaking only Spanish for the past several months and felt very insecure about her English.

At the time of this study, Ana had completed her dissertation proposal and her qualifying exams. Her interviews were spread out over the course of a year, the first occurring in the Summer of 2008 before she started her fieldwork, the second in January 2009 while she was in Colombia, and the third in the Summer of 2009 after she returned. While the interviews lacked the continuity of other participants', they allowed me a glimpse of Ana moving back and forth across two very different research contexts.

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30 Ana and Danny both recounted a failed joke Danny had made when he first met Ana. Upon hearing of these classes, he retorted, “Arkansas? I didn’t know they spoke English in Arkansas.” Ana did not, of course, get the joke. Both participants offered this incident as an example of their relationship—close and congenial, though complicated by communication issues.

31 Ana needed to go to Colombia early to collect needed materials for her fieldwork and to secure funding for her project, which had a budget of $100,000. One of her more costly purchases was a 4x4 jeep she used to reach some of the more remote fishing villages.

32 It was common for many faculty members in this program to have students complete their comprehensive exams after the dissertation proposal.
Data Collection

Data collection for this project lasted from March 2008 to January 2009, with the bulk of the case study participant interviews being conducted during the summer of 2008. As is common in qualitative case study research, multiple data sources were used to allow for triangulation of data (Cousin, 2009; MacNealy, 1999). Data sources included the following:

- Field observations of sites in departments affiliated with the IES program.
- Initial interviews with program faculty and former students.
- Survey of international doctoral students in the IES program.
- Semi-structured interviews with case study participants.
- Collection of case study participants’ texts.
- Observations of participants engaged in literate activity
- Interviews with participants’ faculty advisors

Field Observations in the IES Program

Starting in Spring 2008 and continuing throughout data collection, field observations were conducted of sites within the IES program. The purpose of these observations was to gain a sense of the structure and general environment of the IES program (including general student interaction) and to identify possible sites for observations of more focused literate activities.

Observation sites included student labs and office space, common meeting areas (e.g., student lounges), and student-led meetings or seminars. While I started with general surveys of public areas in buildings housing IES-affiliated programs, most observations
were performed as an “overt observer” or an “overt participant observer,” meaning I had negotiated access to the group to observe it or participate in group activities (MacNealy, 1999). In other words, I was invited into these spaces and identified as a researcher. Many initial observations occurred in conjunction with program faculty interviews or initial meetings with case study participants prior to starting the semi-structured interview sequence. As my relationship with case study participants developed, participants would often invite me to various department functions (e.g., much later in the study, Ana invited me to a going-away party for her faculty advisor), and I would have the opportunity to meet with participants in more informal settings (i.e., over ice cream, coffee, or dinner). Ultimately, these observations helped me select more specific sites to observe students engaged in literate activity (e.g., dissertation proposal defenses, presentations at student-led seminars, etc.).

**Initial Interviews of IES Faculty and Former Students**

In the Spring 2008, I contacted IES program faculty by e-mail, requesting 30 minute interviews on their experiences working with NNES international student advisees. These initial interviews were designed to provide me with a background on the IES program itself, and to identify some faculty’s concerns working with these students. I performed five initial interviews with program faculty. Two interviews were conducted with professors in natural resource management (i.e., forestry and water resource management), and three were conducted with professors in atmospheric chemistry and

33 Case study participants, in particular, often would start our relationship by offering to show me around their workspace and introduce me to their colleagues. We often would spend some time informally chatting about the program or university life.

34 Not included in this tally are the interviews with participant advisors, which often overlapped in content. Overall, I interviewed 12 program faculty members and/or faculty affiliates.
climate change. One of these interviewees—Jack—was also the founding director of the IES program and provided a history of the program and a general overview of concerns about international students he has seen over his 14 years of administrative service. One professor was a NNES scholar from China and formerly an international student at a US university. I have provided a sample of guiding interview questions in Appendix A.

From these interviews, I identified two former students who—in one way or another—are still involved with the program and its students. Susan, who is now the pastor of a community church, was among the first cohort of students to come through the IES doctoral program, and while she is not program faculty, she does still sit on dissertation committees of current students. Scott, who now teaches as a lecturer in another NLGU department, served as the head TA in one case study participant’s lab and, like Susan, has a broader perspective on a lot of the students who have come through the program.

All interviews were digitally recorded, transcribed, and coded for emergent themes.

**Surveys**

In the Spring 2008, I surveyed international students enrolled in the IES. Due to the similarity in goals and context, I adapted the instrument used in Tardy’s (2004b) study of English as an international language of research. The program coordinator distributed the survey to 15 international students through their department mailboxes. Seven anonymous respondents returned the completed survey. The purpose of the survey was to get an overview of students’ reasons for studying at an American university and
their perceptions of the importance of English to their field. Students were asked whether they plan to return to their home countries after completing their degree or to remain in the United States, whether they have written and/or published academic work in their native language, whether they believe they will continue to use English for academic purposes after completing their degree, the degree to which they feel English is important to their professional development, and the degree to which they feel comfortable with their oral and written English proficiency. (See Appendix C for the survey instrument).

The small-scale nature of the survey limits its generalizability; however, since many questions were short answer, the surveys did provide me with useful background on some students’ experiences in the program, including some students not serving as case study participants. I have included a table of the survey results in Appendix D.

**Interviews with Case Study Participants**

As Cousin (2009, p. 72) writes, semi-structured interviews are ideal for “grappl[ing] with complex experiences,” and as such, they provide the bulk of the data for this study. As I will explain in the following sections, these interviews were designed to coincide with the advisor interviews, the observations of literate activity, and the collection of sample texts to aid triangulation of data sources. The three-tier structure of the interview protocol was adapted from Seidman’s (1998) description of in-depth, phenomenological interviewing. Seidman’s model suggests a series of three 90-minute interviews, eliciting—in this order—a focused life history, details of experience, and a reflection on the “meaning” of participants’ experience (p. 11-12). He also advises allowing 3 days to a week between interviews, thus allowing participants to reflect
further on (and possibly amend) answers given in previous interviews without losing the continuity of the overall interview process.

For this study, I employed a three-tier interview protocol that began in Summer 2008 and lasted until Summer 2009. Interviews lasted 60 minutes\(^{35}\) and, with some exceptions, were spaced one week apart.\(^{36}\) (See participant bios for individual interview schedules). The first two interview stages ("Personal Academic Histories" and "Present Experience in the IES Doctoral Program") were the same for each participant. The third stage was a text-based interview focusing on something each participant wrote. Thus, the third interview varied from participant to participant. Pilot interviews were conducted with a NNES doctoral student not in the study sample to test the interview protocol.

All interviews were digitally recorded, transcribed, and coded for emergent themes. Following are descriptions of each interview stage:

- **Stage 1: Personal Academic Histories.** This 60-minute, open-ended interview generated information on participants' cultural and family backgrounds and previous educational experiences. Participants were provided with a set of guiding interview questions beforehand. Interview questions covered participants' country of origin; participants' educational history, including parents' education level and participants' undergraduate education; participants' previous graduate experience in home country and/or America; participants' experience writing academically in their first language; participants' reasons for studying at an American institution

\(^{35}\) Some participant interviews lasted longer than 60 minutes and continued past the initial interview questions, but only when participants felt they had more they wanted to say.

\(^{36}\) Seidman (1998) encourages researchers to stick to the interview schedule as much as possible, though in some cases, these graduate students' busy lives required some flexibility on this matter.
and their professional goals, including whether they plan to stay in America or return to their home countries. (See Appendix B for sample interview questions).

- **Stage 2: Present Experience in the IES Program.** This 60-minute, open-ended interview elicited participants’ experiences writing in the IES program. Participants were provided with a set of guiding questions beforehand and asked to submit a writing sample prior to the interview (preferably a draft of a dissertation prospectus, grant proposal, etc.). Interview questions covered participants’ current program of study, including a description of the interdisciplinary program and their coursework; the types of writing in which participants engage in their academic and/or professional lives; participants’ relationship with professors and peers; participants’ perception of the importance of English to their professional objectives; participants’ experiences and concerns writing for their field; and participants’ writing processes and strategies. At this stage, the writing sample served only as a reference point, and used only as needed for further illustration/clarification. For example, if a participant expressed concern with their wordiness, the interviewer asked the participant to indicate examples in the writing sample, etc. (See Appendix B for sample interview questions).

- **Stage 3: “Textual” interview.** This 60-minute, open-ended interview varied from participant to participant, depending on information elicited in the first two stages. In general, the interview’s purpose was to discern more specifically the
participants’ perspectives of “good writing” in their field, their composition strategies, and/or the degree to which previous writing experiences in their first language inform/complicate their performance on academic literacy tasks in their L2. In each case, the participant was asked to submit copies of these texts at least a day or two in advance. These documents served as the interview focus, and participants were asked questions requiring them to explain and/or reflect on textual or generic features. In Table 2.1, I have included a column identifying the texts serving as the subject of interview 3.

There are some limitations to an interview-based study. Much of the data is based on participants’ perceptions of their experiences—there is always the chance that participants ‘misperceive’ these experiences, or at least ‘misreport’ them. The three-tier interview protocol mitigated this issue to some degree, since the space between interviews allowed interviewees to reflect on and (if needed) amend earlier answers. Also, the researcher could juxtapose answers given during different interviews and look for possible contradictions. From my previous experiences with case study research, these contradictions in participants’ self reports often indicate places where the participant is still struggling to understand her experiences, and are very useful in such a study. Also, the triangulation of data sources provides the researcher with a means of ‘validating’ participants’ reports.

**Collection of Case Study Participants’ Texts**

I collected samples of the participants’ texts throughout the study. Initially, I planned to collect 2-3 samples of drafts or major documents each participant was

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37 For more on “stimulated elicitation interviewing” or “text-based interviewing,” see Prior (2004).
working on at the time of the study. As the study progressed, I found it essential to collect more texts that served either to provide a background for the participants’ present experiences or to demonstrate the generic conventions within which the participant was working, even though I did not analyze these texts as rigorously as others. For this reason, I distinguish between primary texts and secondary texts. Primary texts generally consist of 2-3 documents which the participants identified in their interviews as being significant and/or that served as the basis of either Stage 3 of the interview protocol or the observations of literate activity (or both). As seen in Table 2.1, primary texts are often documents for which I have multiple drafts (and, at times, advisor or reviewer comments), or critical documents which the participant was working on at the time of the interview. Ideally, these documents formed a sequence which allowed me to chart participants’ development from the interviews to the observations of literate activity. For example, as seen in Table 2.1, Girmit’s conference presentation, the subject of Stage 3 in the interview protocol, was also an early version of his dissertation proposal, which had not been written at the time of the interview. The three drafts of Girmit’s proposal that I collected were written between Stage 3 of the interview and the observation of literate activity (i.e., Girmit’s dissertation proposal defense).

Secondary texts provided a context for primary texts. To this effect, I collected previously published papers or theses and sample articles from journals in which participants hoped to publish, or samples of advisors’ published works. As seen below in
<table>
<thead>
<tr>
<th>Participant</th>
<th>Country/Native Language(s)</th>
<th>Field of Study</th>
<th>Stage-3 Topic</th>
<th>Task Observed</th>
<th>Primary Textual Data</th>
<th>Secondary Textual Data</th>
<th>Advisor(s) Interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gabi</td>
<td>Brazil Portuguese</td>
<td>Water Resource Management</td>
<td>Journal manuscript &amp; sample journal articles</td>
<td>Revising article for publication</td>
<td>Journal article for publication (w/ reviewers’ feedback); dissertation proposal</td>
<td>Master’s thesis (in English); draft of dissertation introduction; sample journal articles from “social” and “hard” science journals.</td>
<td>Julie Dr. George</td>
</tr>
<tr>
<td>Salman</td>
<td>Pakistan Urdu</td>
<td>Ocean Mapping</td>
<td>Dissertation proposal</td>
<td>Presentation at student-led seminar</td>
<td>Master’s thesis (multiple versions; w/ advisor feedback); dissertation proposal</td>
<td>Previously published article, presentation on NOAA charter boat research</td>
<td>Bill</td>
</tr>
<tr>
<td>Paulo</td>
<td>Brazil Portuguese</td>
<td>Forestry</td>
<td>Revisions of journal article &amp; reviewers’ comments</td>
<td>Revising article for publication</td>
<td>Journal article (two versions, w/ reviewers’ feedback); response to reviewers</td>
<td>Previously published article; article under preparation (with 2 advisors’ feedback; dissertation proposal (PowerPoint); 5 sample articles from “Remote Sensing” Journal; master’s thesis excerpts</td>
<td>Pete</td>
</tr>
<tr>
<td>Girmit</td>
<td>Fiji Hindi/English</td>
<td>Physical Oceanography</td>
<td>Conference presentation (PowerPoint) &amp; sample of advisor’s writing</td>
<td>Dissertation proposal defense</td>
<td>Conference presentation (PowerPoint); dissertation proposal (three versions, w/ advisor feedback)</td>
<td>Master’s thesis; 5 samples articles from “South Pacific Science Journal”; samples of advisor’s writing</td>
<td>John</td>
</tr>
<tr>
<td>Ana</td>
<td>Colombia Spanish</td>
<td>Fisheries Management</td>
<td>Presentation at student-led seminar</td>
<td>Presentation at student-led seminar</td>
<td>Dissertation proposal (multiple versions)</td>
<td>Fellowship proposal; 2 previously published articles; samples of advisor’s writing</td>
<td>Danny</td>
</tr>
</tbody>
</table>
the Data Analysis, secondary texts were not scrutinized in the same way as primary texts, though they often provided a useful historical perspective on participants’ current literate activity.

**Interviews with Participants’ Faculty Advisors**

After conducting interviews with case study participants, I conducted 30-45 minute focused interviews with participants’ faculty advisors. These interviews served two primary functions: 1) They provided me with a second perspective on the participants’ views of disciplinary practice and the field, and 2) They allowed me to elicit the advisors’ feedback on students’ written work. Altogether, I conducted six faculty advisor interviews (see Table 2.1).

Sample interview questions are included in Appendix A. Care was taken in these interviews not to compromise the participants’ relationships with their advisors. I posed some of the participants’ writing concerns to advisors for their comments, but I did not relay any of the participants’ concerns about the advisor-advisee relationship, even though the concerns that existed were relatively minor.

All interviews were digitally recorded, transcribed, and coded for emergent themes.

**Data Analysis**

The methods of data analysis evolved considerably over the course of this project. I started the project with a framework for analyzing and triangulating interview data with textual data and observations, a framework which served well to highlight the
interrelationships between various factors on participants' learning. Once I started the analysis, however, it became clear that an additional analytical framework was needed to think through the complexity of these interrelationships. I adopted systems theory (Banathy, 1992; Checkland & Scholes, 1990; Laszlo, 1996; Senge, 1990; Walton, 2004) as both an orienting metaphor for this complexity and as a means of mapping and thinking through it.

The interview data from participants, advisors, and program faculty were transcribed and coded for emergent themes using Atlas.ti qualitative coding software. Like Tardy's (2004a, 2009) studies, I focused more on the content of these interviews than on specific discoursal features. Therefore, I included participants' exact words without alterations for clarity, but omitted false starts and fillers.

Coding categories were developed over the course of multiple readings of the data (Brice, 2005; Tardy, 2004a). Initially, data were coded topically based on emergent themes in the interviews (e.g., “advisor feedback,” “methods section, etc.”). This process resulted in a large number of codes and coded passages, so multiple methods of data reduction were needed. First, I used Atlas.ti to search for and merge redundant coding categories and to organize codes into larger “code families.” I created three large code families based roughly on Rogoff's (1995) domains of learning discussed in chapter 1: “cultural/geopolitical factors,” “disciplinary factors,” and “individual/personal factors.” An additional read through the interview data helped me place the individual codes into appropriate code families.

Categorizing codes impressed upon me the highly interrelated nature of factors on participants' learning. I had expected from the onset of this project that there would be
significant overlap in these categories (i.e., items that were, at once, cultural, disciplinary, and personal), but I was surprised by just how much overlap there was. Several features in Atlas.ti allowed me to identify and explore these areas of overlap. I was able to call up all the passages coded in each code family and read through the passages one right after another. Reading participants’ accounts of writing their methods sections alongside other passages marked as “disciplinary factors” gave these accounts a much different flavor than when read alongside passages marked as “cultural factors.” Furthermore, when generating query reports of coded passages in Atlas.ti, I could see all the other codes and code families under which each passage is categorized. In addition, Atlas.ti allowed me to create large network maps of code families and to examine the multiple points of overlap visually by laying them out across the screen and editing their relationships.

Primary textual analysis procedures were drawn from Prior’s (2004) description of intertextual tracing and from Lillis & Curry’s (2006) text-oriented heuristic for tracking changes across drafts. In this study, I focused on additions and deletions, reshuffling/reorganization, and revisions to argument or disciplinary positioning, though I also noted places where participants used advisor or journal reviewer comments to make lexical, grammatical, or conventional changes. In cases where I had multiple drafts of participants’ writing (i.e., Paulo, Girmit, and Salman), I placed the text in side-by-side columns and tracked changes across drafts. The text-based interviews and/or follow-up interviews were then used to elicit participants’ reasons for making changes. In Gabi’s

38Lillis & Curry’s (2006) study of writing for academic publication coded revisions across drafts for eleven items: additions, deletions, reformulations, reshuffling/reorganization, argument, positioning, lexical or register, sentence-level changes or corrections, cohesion markers, publishing conventions, and visual representation of the text.
In most cases, secondary textual data provided me with context for participants’ experience with the primary texts. In some cases (e.g., previous publications or theses), comparing secondary textual data to primary textual data gave me some historical perspective on participants’ experience with academic writing. For example, most of Ana’s previous academic publications were taxonomic reports of a new fish species she discovered during previous research in Colombia, which differed significantly—both rhetorically and linguistically—from the more narrative-based writing required for studies of natural resource management and environmental policy. In some cases, secondary textual data were analyzed rhetorically for features with which participants struggled in their current writing. In chapter 4, for example, I discuss Girmit’s difficulty learning rhetorical conventions for challenging or questioning the existing literature on his subject matter. The complete absence of such rhetorical conventions in Girmit’s ‘master’s thesis (a secondary text) and in articles selected from a regional journal similar to one in which he published his work provides a perspective on this issue one can not obtain simply by analyzing Girmit’s current work.

Interviews and textual data were triangulated with direct observations of participants engaged in academic activity. In Girmit, Salman, and Ana’s cases, I observed participants presenting portions of their research to colleagues, which allowed me to see a dramatization of many of the disciplinary, rhetorical, and linguistic issues which participants discussed in their interviews. In Paulo and Gabi’s cases, I was given a

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39 Gabi was very reluctant to let anyone see early versions of her work (including advisors), so I did not have multiple versions of her text.
window into some of their revision strategies and processes, giving me a taste—albeit limited—of their process thinking through revisions to their drafts.

As mentioned earlier, I discovered during the initial analysis of the data that an additional framework would be needed to account for the complex nature of participants’ experiences. I credit my participants for introducing me to systems theory, a framework used by many researchers in natural resource management and ecology (among other fields) for conceptualizing and interacting with highly complex natural, political, and economic systems.

As discussed in chapter 1, systems methodology differs widely from field to field and from situation to situation. While researchers studying the dynamics of hard systems—systems more readily quantifiable and with more predictable causal relations among interrelated factors—use computer modeling programs to map out the system being studies, researchers of social systems or human activity systems—so-called soft systems—rely more on qualitative methods and heuristics to flesh out system definitions and dynamics. I found several sets of heuristics to be useful in examining the complex interrelationships of students’ factors on learning, including Banathy’s (1992) three lens heuristic. However, I relied most heavily on Checkland and Scholes’ (1990) CATWOE heuristic (discussed in chapter 1) for initially sketching out the parameters of learning systems and for creating “rich pictures.”

The use of models or rich pictures is integral to systems theory. As Checkland and Scholes (1990) contend, pictures can convey the “rich moving pageant of relationships”

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40 In the three lens heuristic, the researcher looks at a system from three viewpoints: the “Systems-Environment” lens, which defines the nature and boundaries of the system; the “Functions/Structure” lens, which considers what the system does; and the Process lens, which describes how a system transforms inputs to outputs.
characteristic of human affairs better than linear prose (p. 45). Or at least, as Meadows (2008) indicates, structural diagrams—however we choose to draw them—force us to “expose [our] mental models to the light of day,” where they can be scrutinized by others (p.172). For this reason, I have made extensive use of diagrams and visuals throughout this project, even though the use of such diagrams has a checkered history in composition studies. As I mentioned in chapter 1, a critical distinction to be made concerning such diagrams is their use as “process” instead of “product,” a distinction which should be very familiar to writing researchers. The finality of published diagrams gives the illusion that they are intended to be a finished product, a definitive representation of reality. However, numerous systems researchers (Checkland & Scholes, 1990; Meadows, 2008; Walton, 2004) have emphasized their role in the process of conceptualizing complex systems. The intent in constructing rich pictures of systems, according to Checkland & Scholes (1990), is to present a “snapshot” of reality, which is then scrutinized, revised and presented again for further scrutiny. That is, these diagrams are merely a tool for thinking about complex relations; they are, by their very nature, incomplete, provisional, and subject to revision.

Further, the construction of diagrams is intended to be a collaborative process, and so part of my process involved discussing these diagrams with members of my writing group at the University of New Hampshire and members of the second language writing community. Not only did they contribute to the mapping of concepts, they provided significant feedback in simplifying these images to make them palatable for readers who might be unaccustomed to using diagrams.

41 Flower and Hayes’ (1981) cognitive process model was often seen as a static, confining representation of the writing process, though the authors saw it as recursive and dynamic. See Bizzell (1982) for a critique of the model.
CHAPTER 3

THE ‘STUFF’ OF IDENTITY: THE ROLE OF STUDENTS’ INDIVIDUAL LEARNING TRAJECTORIES IN GRADUATE EDUCATION

Admittedly, “identity” is a can of worms, yet it is critical to understanding learning in advanced academic settings. Like “voice” in writing, “identity” and “selfhood” are elusive and ghostly concepts. They deconstruct easily—when dissected and analyzed, they appear not to even exist. From a pragmatic perspective, however, identity is, for many of us, a palpable reality that guides much of what we do and influences our goals and aspirations. Moreover, for learning theorists and developmental psychologists, identity plays a critical role in how we organize, use, and transfer knowledge from participative experiences.

Numerous writing researchers, drawing from the works of Erving Goffman, have explored the role identity plays in academic writing, though many have focused on identity’s dramaturgical nature—that is, identity as the self or selves we perform to others either in person or in writing (Brooke, 1991; Goffman, 1959; Ivanic, 1998; Newkirk, 1997). These previous studies of identity and academic writing inform this current discussion, as they provide valuable lenses for understanding certain aspects of identity. However, in this chapter I would like to focus less on identity as performance or as sets of categories we use to describe ourselves and others and more on the process by which an academic identity is constructed and negotiated. That is, I pose identity as a system of experiences—as a complex ecological phenomenon, a map of the intricate and dynamic
relationship of a learner and her environment, and even as a psychological tool for organizing experience and problem-solving. In particular, I focus on how academic identities evolve over time, how these identities affect international doctoral students’ performance on academic tasks in their second language, and what impact identity has on affective factors in learning, such as confidence and motivation or investment (Norton, 2000; Norton Peirce, 1995).

In the case of Gabi, a Brazilian student researching water resource management, this identity construction process is incredibly complex, requiring her not only to develop a sense of herself as an academic, but to reconcile competing disciplinary identities she encounters in her multidisciplinary program—i.e., being a “hard scientist” versus being a “social scientist”—and competing cultural and linguistic identities—i.e., what it means to be a US academic versus a Brazilian academic. This process of identity construction is an integral part of learners’ individual learning trajectories, which in turn affects how they approach academic tasks (See Figure 3.1). Understanding the process by which international doctoral students negotiate their academic identities is a critical first step toward designing holistic writing support mechanisms that better account for the highly integrated nature of their learning processes. So in this sense, one might view this chapter as a rich description of this process. In chapter 5, I talk more specifically about how students’ evolving academic identities affect their performance on academic tasks, and in chapter 6, I address the implications this identity construction process has for academic writing support.

In this chapter, I start with an overview of the theoretical framework informing my discussion of identity, drawing both from research on identity in situated learning
theory and developmental psychology and from reflections on my own academic development. I then focus more specifically on Gabi’s experiences negotiating academic, disciplinary, and cultural identities, using narrative to provide a richly-layered portrait of the intricate connections between learning and identity. My goal in doing so is to lay critical groundwork for our systems view of learning in US graduate programs.

**The ‘Stuff’ of Identity**

It is appropriate to begin my discussion of identity on a more personal note. I first became interested in academic identities while writing a book chapter with my mentor, Paul Kei Matsuda (Simpson & Matsuda, 2008). Initially, our goal for this article was to use Lave and Wenger’s (1991) theory of situated learning as a framework for understanding how our mentor-mentee relationship fostered my academic enculturation.
While writing this article, it became clear to me that Paul—significant as he was to my professional development—was but a piece of the overall learning experience. Learning to “do” graduate school, I found, involved developing what it meant to be an academic in the field of composition studies, a process I could best describe at the time as a “layered” experience:

My own learning trajectory, then, has involved identifying and, to some degree, appropriating pieces of others’ identities (i.e., research interests, professional habits, etc.). Thus, by working closely with Paul, I have not simply become Paul, but certain aspects of his professional identity have become an integral part of my own. [...] Further, I can identify certain elements of my professional identity that have developed from working closely with Christina, Michelle, and Joleen at UNH, and from working peripherally with other graduate students at Purdue or San Francisco State University. In short, I credit Paul for nudging me deeper into our discipline’s network of activities, which has facilitated the development of my professional identity. (pp. 99-100)

Implicit in this passage is an intimate link between learning and identity, a connection echoed throughout sociohistorical research on learning. As Wenger (1998) explains, “because learning transforms who we are and what we can do, it is an experience of identity. It is not just an accumulation of skills and information, but a process of becoming—to become a certain person or, conversely, to avoid becoming a certain person” (p. 215). As a developing professional in composition studies, for example, learning for me meant deciding what sort of academic I would be (e.g., a stuffy-headed researcher with elbow patches and a stack of books on critical theory? An inspirational, Dead Poets’ Society-style teacher who’s carried out of the classroom on his students’ shoulders?), how I would orient myself as a researcher (e.g., a composition historian? A theorist? An empirical researcher?), and even what stances I would take on critical issues in the field. All of these decisions I have had to make about my academic identity were informed by previous social or interpersonal encounters, by observations
and affective responses to events and activities in which I've participated, and by people who have influenced me along the way. In short, my identity is a system of experiences.

To this end, I pose Wenger's (1998) definition of identity as one I will build on in this chapter. "An identity," Wenger writes, "is a layering of events of participation and reification by which our experience and its social interpretation inform each other. As we encounter our effects on the world and develop our relations with others, these layers build upon each other to produce our identity as a very complex interweaving of participative experience and reificative projections" (p. 151). That is, as we participate in various social and professional activities, we appropriate actions, language, and values in an attempt to develop a sense of ourselves as members of a community of practice, and these experiences are the 'stuff' with which we construct our identities. We then receive feedback from others within the community of practice—implicit or explicit—on how well the identity fits, prompting us to make adjustments accordingly. As previously discussed in chapter 1, we are adaptive self-organizing systems, able to remake ourselves and our identities based on environmental feedback.

Further, our experiences are punctuated by episodes of reification in which we reflect on experiences we mark as "significant" and consider how they inform previous experiences. For me, the act of writing the book chapter with Paul prompted me to revisit some of what I had experienced working with him, such as transcribing a conversation between him and Dwight Atkinson for Contrastive Rhetoric: Reaching to Intercultural Rhetoric (Connor, Nagelhout, & Rozycki, 2008). While transcribing the conversation, I was not focused on much more than the activity itself, particularly since it was my first time using a transcription machine and I felt hopelessly awkward. However, when
reflecting on this experience for the book chapter, I started to value the insider knowledge this activity provided into the field of second language writing. This experience has become a critical part of my academic identity, even if it did not seem significant at the time.

The process of identity construction is not by any means a simple, static process. It is a temporal process only in the sense that we experience some things before others. I completed my master’s degree before entering a doctoral program, so naturally, my experience writing my master’s thesis informed the process of writing my dissertation. However, identity construction is not by any stretch of the imagination a linear process. As Wenger (1998) explains,

> We are always simultaneously dealing with specific situations, participating in the histories of certain practices, and involved in becoming certain persons. As trajectories, our identities incorporate the past and the future in the very process of negotiating the present. [...] They provide a context in which to determine what, among all the things that are potentially significant, actually becomes significant learning. A sense of trajectory gives us ways of sorting out what matters and what does not, what contributes to our identity and what remains marginal (155).

That is, identity construction is a highly selective process: we are constantly determining which experiences are relevant and which are not. Further, as Wenger maintains, our learning process is not a single trajectory. The act of identity construction often involves negotiating and reconciling a number of roles in diverse communities of practice, a complex task that often continues throughout a person’s life.

Research in developmental psychology corroborates Wenger’s conception of identity and describes the critical, lifelong role played by identity and, more generally speaking, by autobiographical memory, a process broached but not fully explored in
more performance-based depictions of academic identity (Ivanic, 1998). The notion of autobiographical memory developed in response to the problem of “childhood amnesia,” the fact that most adults have only hazy, decontextualized memories of events occurring before age three (McAdams, 1988, 2003; McAdams, Josselson, & Lieblich, 2006; Nelson, 2003). Research suggests that before this time, children remember events, but only as disconnected episodes. Between the ages of two and three, accompanying a developing social awareness and language proficiency, children begin to see these events as happening specifically to them. Eventually, children begin to narrate these events in story form, an activity scaffolded by family members who question them about these events and rehearse the narratives with them. As Nelson (2003) maintains, this narration of autobiographical events “serves the child as a framework for reconstructing his or her own specific memories” and “leads to the emergence of autobiographical memory and thereby to the preservation of memory over time” (p. 14). These self-narratives—or what Bruner (1996) refers to as “narrative construal[s] of reality”—continues to function throughout adolescence into adulthood as a means of making sense of experience and making knowledge gained from an experience accessible in other contexts. That is, these narratives are a way of “coding” experiences for later access and retrieval (Nelson, 2003).

Employing Erik Erikson’s psychosocial theories of identity formation, McAdams and others have argued that identity is a subset of autobiographical memory, and that the work of identity construction begins sometime in early adolescence (Erikson, 1968; McAdams, 2003; Penuel & Wertsch, 1995). At this point, the adolescent has a range of varying, often conflicting, autobiographical memories and occupies a number of

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Ivanic (1998) discusses the role of “autobiographical identity” in academic writing, though her particular analysis focuses more less on how such identities are constructed and more on how students' negotiate these identities in writing.
competing roles. As McAdams writes, it is at this time, most often at the prompting of others, “that people first seek to integrate their disparate roles, talents, proclivities, and social involvements into a patterned configuration of thought and activity that provides life with some semblance of psychosocial unity and purpose” (p. 188), a process requiring people to integrate seemingly conflicting realities. The work of weaving these disparate experiences into a seemingly holistic sense of self, according to McAdams, is inevitably social, as people take cues from society to determine which roles and experiences are culturally valued and to select a narrative framework or genre that best communicates their life stories (e.g., the redemption narrative, the success through hard work narrative, etc.).

Sociohistorical research on identity construction has provided several valuable clarifications on Eriksonian conceptions of identity formation. To begin, Penuel and Wertsch (1995) caution researchers against depicting identity formation as a purely individual process; rather, they stress the critical role of social interaction and culturally-mediated tools. Even something as abstract as an ideological or political perspective one uses to shape her sense of self must be seen as part of the cultural toolkit one uses for higher mental functioning. Perhaps more importantly, both Penuel and Wertsch (1995) and Wenger (1998) shift the analytic unit in researching identity construction from a focus on the individual to either the action resulting from one’s process of identification (e.g., the particular career one chooses to pursue as a result of the identity one has constructed), or the particular way an identity affects participation in a socially-mediated activity. Wenger (1998), for example, describes how identity serves as a lens through which we interpret activity. “As we invest ourselves in an enterprise,” Wenger argues,
"the forms of accountability through which we are able to contribute to that enterprise
make us look at the world in certain ways. Being a claim processor, doctor, parent, social
worker […] gives us a certain focus. It moves us to understand certain conditions and to
consider certain possibilities (p. 152). Inevitably, our identities affect how we engage in
activity, and as sociohistorical researchers have argued, participation in activity results in
a transformation—however big or small—of an individual’s identity (Lave & Wenger,

**Identity as a System of Experiences**

As we discussed in the previous section, identity is more than a label; rather,
identity, as part of our individual learning trajectories, is a tool for understanding and
organizing experience and a lens through which we interpret and engage activity. Identity
is a system of experiences that form who we become as professionals in our chosen
fields.

For international doctoral students, this process becomes especially complex, as
they are often in the position of not only forming an academic identity, but also
reconciling this identity across cultures and, at times, across disciplines. Their success in
reconciling these disparate roles and identities has implications not only for their growth
as academics, but for their investment in language learning (Norton, 1997, 2000; Norton
Peirce, 1995) and their negotiation of professional goals.

In the case study that follows, I look more closely at Gabi’s process of identity
construction. After providing some background on her life and educational background, I
focus on three specific aspects of her identity construction which affect her academic
enculturation within the IES program: her developing academic identity (i.e., what it means for her to be an academic); her disciplinary identity (i.e., how she positions herself as “an economist” in a multidisciplinary program); and her cultural identity (i.e., what it means for her to be an academic in a US academic context versus a Brazilian context).

**Gabi: Background and Educational History**

Gabi is a Brazilian woman in her mid-thirties researching water management strategies for the Saõ Francisco River in Brazil—the “River of National Unity,” as she refers to it in her dissertation. Having grown up in a poor, black family in Salvador, Brazil, Gabi is very conscious of how her life history informs her perspective on her academic research and voices this connection very explicitly in much of her writing. Further, Gabi is the only case study participant in this study who identifies as a “social scientist,” and she speaks often about the difficulty negotiating the divide between the “social sciences” and the “hard sciences,” both in her writing and in her interaction with faculty and students in the program.43

Gabi and her sister were raised by a devout Catholic mother in a poor, female-headed household. She explained that children in her situation commonly drop out of school early to find work and help support the family. Gabi’s mother, however, insisted that her daughters would not work, but would concentrate solely on school. Gabi’s mother worked feverishly in a local hospital to support her daughters’ education, in addition to having the support of the extended family with whom they lived. When she

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43 The distinction between the “social sciences” and the “hard sciences” is admittedly problematic, particularly in a multidisciplinary program such as this one. However, it is a distinction used by many of the faculty and participants in this study. Interviewees who came from the social sciences or humanities were particularly aware of the differences between their work and the work of colleagues from the natural sciences.
could afford it, Gabi’s mother enrolled her daughters in private schools, though she would often have to transfer them back to public schools when the money ran out.\footnote{In Brazil, public high schools tend to be more vocational. Students wishing to enter college are required to pass entrance examinations administered by the various institutions, and preparation for these exams is hard to come by outside of fairly exclusive private high schools. Gabi’s mother knew from her conversations with doctors in the hospital that her daughters would need private schooling if they were to have an option to go to college.}

After graduating from high school, Gabi secured a job at a credit card management company and commenced plans to pursue a college degree. She eventually decided to study economics at a local private college for pragmatic reasons: not only did she feel this degree might help her advance in the credit card company, but it was one of the few programs that offered evening courses, thus allowing her to keep her job while in school. Aside from these pragmatic considerations, Gabi also cited personal reasons for studying economics. Coming from a poor family, she became interested in the social dynamics of poverty and in ways of improving one’s financial status. As she continued her studies, she grew increasingly disturbed by the situations she encountered at work—stories of families whose desperate circumstances forced them to borrow beyond their means. Gabi remembers feeling that she was in a “contradictory” situation. “And I thought that to hear all the comments that those people had,” she recalled, “and were some of the comments I heard from my ma during her life, you know, was what made me leave the job.” These experiences also fueled her interest in pursuing a graduate program—or an “\textit{especializaç\'ao}”—in economics, but she knew of no one who had gone through this process and did not even have an idea of where to begin. Further, she was not confident she would be accepted into one even if she tried.

Gabi’s opportunity to study at NLGU came from a chance encounter with “Don,” an economics professor at NLGU, at a bank in Brazil. Gabi’s minimal experience with
English in college allowed her to obtain work as a translator at a bank during tourist season. Don and Gabi soon started both a personal relationship and a mutually beneficial research partnership. Since many of Don’s textual sources were in Portuguese, Gabi’s knowledge of the language and the research setting were invaluable. For Gabi, this project was her first exposure to graduate-level academic research. In addition, her work translating Portuguese-language articles into English bolstered her developing—albeit discipline-specific—academic vocabulary and increased her confidence in her language abilities. As Gabi explained, she had always had trouble with English. She laughed, in fact, that she nearly failed a grade in middle school due to her poor performance in an English class. It wasn’t until she actually had a chance to use English, first in a bank and then with Don, that she felt an investment in learning English. Most importantly, Gabi believed being named second author on a published article with Don was her ticket to graduate school. “That research was for me important step,” she explained, “because I was not getting into that especializaçã program [in Brazil], but that research was big step for me to maybe get into a program here in the US.”

Don did, in fact, help Gabi secure a visa to come to the US, and he also had plans to help with her admittance into a master’s program in economics. After coming to NLGU, however, Gabi learned about the Natural Resources program and felt it would provide her with more options than an economics degree alone.

45 I should note that gender plays a significant role in this case, both in the interaction between Gabi and her advisors (particularly Don) and in her professional opportunities within Brazilian academic communities, which still tend to be highly patriarchal. I do not have the space to elaborate on this aspect in this chapter, though I plan to do so in future iterations of this work. For more on gender and English for academic purposes, see Benesch (2001).

46 It is also important to note that Gabi was accepted into the economics program, in fact, though she did not receive any financial support. She would not receive financial support from the IES program either,
Developing an Academic Identity: Gabi and Her Mentors

As I mentioned earlier in the chapter, constructing an academic identity involves picking and choosing from a network of possibilities. My own identity construction involved piecing together parts of what I observed in others. Similarly, Gabi developed good working relationships with three academic advisors—Julie, Dr. George, and Don—each of whom modeled very different aspects of an academic identity, and each of whom contributed in co-constructing Gabi’s sense of herself.

Julie: “The Academic as Activist”. Gabi’s primary advisor, Julie, has had the greatest impact on Gabi’s developing academic identity. Not only has she helped Gabi realize her own academic strengths, but she has modeled an identity of “academic as activist” with which Gabi resonated given her own very personal investment in her research.

Julie has had an eclectic career trajectory, coming to academia after a long career in environmental policy. “I spend a lot of time in the real world getting my hands and feet muddy and dirty in the process,” she reported. “I covered the entire span of the environmental era in my professional life and in my life as a citizen activist. So my job is to train troublemakers, change agents.” While Julie now resides in academia, she still identifies more as an activist. This divide between “academia” and the “real world” permeated our discussion (and, as it happens, trickled into my interviews with Gabi). While Julie publishes in academic journals, for example, she refers to this activity as a “waste of my time,” as environmental problems are “solved in the real world, not in

though her advisor—“Julie”—was fairly resourceful in helping Gabi find teaching opportunities on campus. Gabi eventually taught undergraduate Portuguese language classes at NLGU.
academe.” Rather, she believes her work advising on policy and developing training programs to be much more fulfilling—“that’s where the rubber meets the road,” she declared.

Julie admired Gabi’s fierce independence and saw a lot of potential for Gabi to be the sort of “troublemaker” she hoped to train. Gabi initially started working with Julie as a master’s student, and even then Gabi knew that she wanted to research water management issues in the Sao Francisco River. However, she also recognized that Gabi, at least initially, lacked the experience and the disciplinary knowledge to attack this problem holistically—as an economist, and as a Brazilian native who had not traveled outside of Brazil before this time, Gabi simply had too narrow a lens to engage this project.

Thus, Julie suggested that Gabi conduct her master’s research on the Hudson River in preparation for her doctoral work on the Sao Francisco. Not only could Gabi make use of some of Julie’s contacts in the area, but she would practice her qualitative research methods and could benefit from seeing a bevy of management programs that either failed or succeeded in this location. This experience was a breakthrough for Gabi, Julie recalled, though it required her to question many of her own assumptions of reality:

So Gabi had the idea that because of one of the readings she did that the revolution that got citizens involved in solving environmental problems in this country meant that the citizens alone solved those problems. And I got a call from her while she was doing her fieldwork for her master’s degree. She worked on the Hudson River. Gabi always has questions. She’s a question box. She’s wonderful. And so she called up and she said – she’s practically in tears. She had had her fondest assumptions about the reality in this country completely shattered. And I said, “Well, what’s wrong?” She said, “Well, the citizens can’t do it by themselves. They need government.” And, of course, that was a really big shock to her because in Brazil, government was the problem. And I said, “Well, yeah, we have to have the laws that give the citizens the right to intervene and participate. But if you don’t have government, you don’t have somebody legally
looking after the public interest. And, of course, that was a complete cultural sort of cold-water bath for her. But it made all the difference in how she’s designed and proceeded in her doctoral work.

This experience changed Gabi in very significant ways, and in her master’s thesis she wrote very explicitly about how her own identity as a Brazilian national both shaped and was shaped by this academic task:

The researcher’s view of the world and its systems (e.g., environmental and economic) and how human and natural systems interact, basically arises from the experience of living in a South American Country. The experience and heritage as a Brazilian citizen, born and raised in a less developed country, and having lived there until coming to study in the United States three years ago, gave me a different perspective of the way I see the Hudson ecosystem and the environmental movement dedicated to its rehabilitation.

Many of us [Brazilians] focus on the short term issues, as we are too busy trying to survive the everyday battle of life. We don’t recognize the importance of electing the country’s leaders and the accountability that they have for building a better society. In the same way, we don’t perceive the further necessity and responsibility of pushing and assuring that the politicians are going toward the right direction: to walk a path toward a fair society for people and environment. How can we achieve and/or assure environmental sustainability in watershed areas constantly affected by human intervention.

Thus, this experience, with Julie’s guidance, prompted Gabi to reflect on previous life experiences and to adjust her perspective as an academic accordingly.

Dr. George: “The Academic as Writer”. Dr. George, a retired history professor, has also played a critical role in Gabi’s development, particularly in terms of her “writerly” identity. A specialist in Brazilian military history, Dr. George is fluent in Portuguese and assisted Gabi very early on in securing the necessary documentation to study in the US. He was very often the one on the phone with the US consulate in Rio de Janeiro hammering out her visa details. Once Gabi began her dissertation research on the São Francisco River in Brazil, she asked Dr. George to sit on her committee, in large part
because of his vast knowledge of Brazilian history and culture. An American, Dr. George has traveled to more states within Brazil than most Brazilians and has an intricate knowledge of cultural variations from region to region. However, Dr. George has also given Gabi the most direct feedback on her language and prose style, in addition to providing her with a manageable organizational scheme for her dissertation. A prolific, award-winning author, Dr. George credits accomplished writer-scholars in his own graduate education for helping him develop a strong “writerly” orientation, so much so that he “disagree[s] with the basic notion that there is such a thing as academic writing”; he considers it to be something academics “dreamed up to explain why their materials wouldn’t be interesting to people.”

For Gabi, the notion of a writerly academic was new, but it’s also something she felt was necessary, particularly considering her dissatisfaction with how she wrote her master’s thesis. Gabi acknowledged that a shortcoming in her master’s thesis was her overuse of quotations. After a meeting with Dr. George, Gabi identified having this same problem when writing her dissertation:

I think it would be better if I tried to be more creative, more myself. And what I’m trying to do now is that. Because I’ve received some feedback from the history professor, and he tells me that there is a reason why you went to the field to collect all this data. Then what I’m trying to do now is I’m trying to incorporate my data, what I can call my data, that is the data that I went to the field to collect, because the articles, books, are someone else’s data, you know.

For Dr. George, part of becoming a writer was developing a “voice,” a goal we see glimmers of in Gabi’s declaration of being “more herself.” Dr. George commented that the descriptions she had initially provided of her field site were too clinical and lacked the rich description typical of qualitative research. He advised her on how best to include more of “herself” in her writing:
You know one of the things I told her is, when you’re going to these towns, you’re excited. You’re going someplace new, seeing things you’ve never seen before, taking pictures. When you’re developing a narrative of the place as you’re there, and when you came back it became this very mechanical way of describing it, and it gets lost. So there’s this one town called [town name] where there’s a waterfall, and it sort of [inaudible]. Well, what does it look like? There’s two little [inaudible] beside it, and it’s a fishing village, so fishing craft, old steamboats, [inaudible]. What’s it look like? What’s it smell like? What’s it sound like? You know she’d tell me some of this stuff, and I’d say, why don’t you say that? It’s not coming through here at all. Color, what about color? Brazilians paint their houses in all sorts of wonderful colors. So if you can capture some of that, you can capture the reader.

Gabi utilized this advice when drafting her dissertation’s introduction:

The narrow main street of Brejo Grande takes a visitor on a trip through time. One row of colorful residences stands parallel to each side of the paved stone road. Red tile roofs and one-floor dwellings are the norm. Some owners have elevated their home to higher grounds in order to protect their life investment. Unexpected floods can turn the land into a brejo grande, a big swamp. During such events, it is possible to fish in the street. Old cars, bicycles, even a boiada\(^7\) crossing the road carries us to a distant past. Satellite dishes on houses’ roofs are the time machine in-charge of transporting us back to the present. Coconut and other fruit trees complete the background under a radiant blue sky.

As I will discuss later, Dr. George had a very strong “humanities” orientation, and Gabi often had to be selective in how much of his advice she accepted, particularly when writing for science-oriented publications. Nonetheless, the character and the passion Dr. George helped bring to Gabi’s writing resonated with her own sense of personal motivation for her subject matter.

Don: The Nuts and Bolts of “Living Academically”. With her personal relationship with Don, Gabi was afforded an insider’s look at the nuts and bolts of being an academic that few international students have. Not only did Don guide her through the

\(^7\) A herd of cows.
process of applying to graduate school and finding funding,\textsuperscript{48} he brought her along on many of his own research projects, thus giving her an insider’s look at how an academic professional conducts a major research project. Granted, at some point in Gabi’s graduate school experience Don dropped more to the background. As Julie, Gabi’s advisor, explained, Gabi is a very independent woman, and though Don and Gabi continued their personal relationship, Gabi needed to strike her own path academically. However, she still credits Don for teaching her foundational researching skills, and acknowledges recognizing traces of Don’s writing style in her own. “He tries to put in one sentence everything,” Gabi admitted, laughing. “You know, I think some of that I learned from him. For example, the titles of his paper has 4 or 5 lines, and I keep telling him that he doesn’t have to write the paper in the title.”

More importantly, Gabi stressed that while Don does not advise her on classes or help with her coursework as Julie does, Gabi has learned a lot from Don about “living academically.” She has had the opportunity to observe how Don apportions time for research, teaching, and extracurricular activities. She and Don have other couple friends who are very “academically-oriented.” This inside look at the day-to-day activity of an academic was critical for the development of Gabi’s own professional identity, and as I said earlier, it’s an advantage that a lot of other students—even American students—do not have. However, as I will discuss later in this chapter, this exposure to the life of an academic has limitations. When I shared with Gabi my focus on identity in this chapter, she made certain to point out that Don has modeled for her an identity as an academic in

\textsuperscript{48} Gabi eventually received a diversity scholarship from the NLGU graduate school and additional funding from a philanthropic organizing assisting women from developing countries.
a US context. What she lacks, however, is an understanding of how this identity differs in Brazilian contexts, which is critical given her aspirations of returning to Brazil one day.

**Developing a Disciplinary Identity: Identity as a Network of Multiple Trajectories**

Wenger (1998) refers to identity as a “nexus of multimembership” in various communities of practice (p.159). That is, identity construction involves reconciling—or attempting to reconcile—multiple roles a learner simultaneously fills—researcher, teacher, international student, daughter, etc. This point is critical when examining the development of a learner’s “academic identity, as huge gaps often exist between a learner’s academic life and their lives outside of school, particularly for graduate students. Many faculty members in my study, in fact, noted that they still struggle with this issue and are reminded of it every time they try to explain their research to the blank stares of friends and family. However, even to speak of an “academic identity” within a given field is problematic. What it means to be an academic in a given field is highly variable, and learners must often toggle between multiple academic selves in the process of academic enculturation, and throughout their professional lives.

As a student in a multidisciplinary program, Gabi found it particularly difficult to reconcile the disparate disciplinary identities she encountered among students and faculty. Coming from a background in economics, the transition to the more broadly defined field of natural resource management entailed not only learning new concepts and theories, but learning the academic language necessary for articulating these concepts:
I can say that I had an economic view of the world, and to move from economic view to a broader view was a little harder. I used to have a little notebook where I was make my own dictionary, Like A this this this. And I was listing the words and the meaning for the words. And I used also to take lots of notes during class. That helped me, too. And one way how I study is writing. I’m reading a book, and I’m copying exactly what I have in the book, which helps me with my English. And I’m writing the major ideas that each article is giving me. And that was one way how... that helped me, not only with the English, but with the content that I had to learn.

That is, like two other participants in this study, Gabi’s most significant language learning experiences came only when she realized the pragmatic need for English in her academic life, and much of her language learning occurred within the context of her particular discipline. Thus, language was a significant obstacle to navigating among disciplinary identities. Gabi, a perfectionist, was hesitant to request extra time on projects, though Julie reminded Gabi that hers was a special case, and that it was all right to request extensions.

For Gabi, navigating disciplinary identities also involved reconciling completely different attitudes toward research and toward “good” writing. As I mentioned earlier, Gabi identifies strongly with the social sciences, which often puts her at odds with many of her classmates who come from backgrounds in the natural sciences—the “hard sciences.” Gabi recalled one class in particular—Hydrology in a Global Perspective—where she was the only social scientist in the class. In fact, the professor would often single her out during class discussions—in jest—as the class’ resident social scientist. While heavily slanted toward the “hard sciences,” this class did explicitly discuss ways of reconciling these varying research orientations. “That was a wake-up call for me,” Gabi explained. “Because I saw how the hard science could be social, and how the social science could be hard science, too. [...] That professor has a lot of experience in being a
hard scientist in committee dealing with real life issues. And I think that was a big influence in the way how I do research, too, because he ended up being on my doctoral committee.”

In particular, the course taught Gabi strategies for utilizing her background as an economist while also appealing to researchers in the “hard sciences.” For her course project, for example, she settled on a paper discussing “virtual water” trade in the São Francisco River basin, a paper which she developed into a conference presentation and a publication in a Brazilian academic journal. The paper describes how many communities along the São Francisco River specialize in growing and exporting fruit, which naturally absorbs water. Exporting this fruit transfers this water to a different ecosystem, resulting in a measurable change in the São Francisco water level. Such trade is considered “virtual,” as it is not immediately clear to residents that they are trading their river away. However, the amount of water lost in such exchanges can be quantified, allowing Gabi to provide the “hard” facts and statistics for “hard science” audiences while also discussing the larger economic and political implications in ways she is accustomed to.

This distinction between the “social sciences” and “hard sciences” surfaced more, however, when negotiating differing expectations from her very interdisciplinary dissertation committee and in choosing a suitable organizational style and register for academic publication. This negotiation process often requires Gabi to select which advice from her advisors is appropriate for which situation, and to decide how much she can concede to other disciplinary orientations without compromising what she believes to be core aspects of her identity as a social scientist.
Julie, who also identifies more with the social sciences and who experienced negotiating these disciplinary negotiations in her own graduate studies, helps mediate the conflicting expectations of Gabi’s committee members. For example, the “hard scientist” on Gabi’s committee recommended that Gabi write her dissertation as a compilation of publishable articles, and that she publish pieces of her dissertation along the way. Gabi found this request difficult to fill, however, since the chapters of her dissertation are, in her mind, very strongly connected. “I think I will have one big package,” she explained. “I do not have independent chapters, because even if some chapter ends up being an article, I will have to give the missing part, the missing context, to that article before sending it.”

Julie confirmed that many of her students’ dissertations do not easily lend themselves to the article compilation method, as they rely on a lot of cross-case analysis. “Until you actually finish the work,” she explained, “it’s hard to publish along the way unless you have some particular thing in the methodology that you want to put out for investigation.”

As a historian with a “humanities” orientation, Dr. George represents the other end of the disciplinary spectrum. In some cases, Dr. George’s advice—while embedded in particular disciplinary biases—is very useful. For example, Dr. George provided very helpful advice for Gabi in finding her own voice among her many citations, though in doing so expressing a very common complaint many humanities scholars have of social science research using APA format:

This last year, she gave me a couple of pieces that had all kinds of problems with them. I mean, one thing that cluttered the page is she had the idea that she had to put all of her notes into the text. I’m an absolute opponent of doing that. I mean

49 The “article compilation” dissertation format has grown very popular in the sciences, particularly since there are few venues for publishing book-length monographs. See Dong (1998) and Paltridge and Starfield (2007).
the social sciences love to clutter up the page with authors' names and stuff, and it's just deadly. You can't *read* that stuff. [...] So the first thing asked is, take all of those out. Don't destroy them, just put them aside. So you're working with a paragraph that's not cluttered so you can see, hey, this noun relates to this verb, to this object. You can't see it otherwise. And she did that first. And that had an impact on catching all these stray conjunctions that she kind of missed.

While Gabi would be expected to preserve the "deadly" social sciences notations if publishing in a social science-oriented journal, the technique helped her considerably. However, Gabi expressed some reservations about Dr. George's previous advice to provide more colorful descriptions of her research settings, as she feared such descriptions would not be appropriate for "hard sciences" publications such as *Water International* (*WI*). "People in *WI,*" she explained, "don't seem to care about that description. And some of the comments I received from [Dr. George] was actually, look at the picture that you took of the place? What do you see? [...] He keeps telling me that there are things that *only I saw,* and I have to let the readers know that I've *been* to the field. But for *WI,* it would not work." In a follow-up interview, Gabi described her experiences writing for her many disciplinary audiences as a balance she must learn to strike as a writer and as researcher who strongly identifies with multidisciplinary approaches:

Because I think one of my major constraints is an advantage being in a multidisciplinary field writing a multidisciplinary project, but at the same time sometime I restrain myself because, oh, [mock scientific voice] the scientist will not like to read what I have to say, oh but the social scientists, the liberal arts people (laughs), you know will not like because is very boring, you know. That is, *I'm* trying to find the balance. That is my part, trying to find the balance, knowing that I have to provide accurate information, and the source of that information, but also can make that more interesting to read.

Equally important as Gabi's identity as an economist is her identity as a Brazilian native, which not only informs her analytical perspective on her subject matter, but also
serves as her primary motivation for conducting research and as a critical factor in her imagined career trajectory. For Gabi, however, it is a constant struggle to negotiate space for both her national and disciplinary identities in her research.

As mentioned earlier, Gabi references her autobiographical identity in most of the documents she writes. For example, the following passage is a statement of identity included in Gabi’s dissertation proposal, though the first paragraph, as we’ve already seen, also appears in her master’s thesis:

The researcher’s view of the world and its systems, such as environmental, social and economic; and how human and natural systems interact, basically arises from the experience of living in a South American Country. The experience and heritage as a Brazilian citizen, born and raised in a less developed country, and having lived there until coming to study in the United States four years ago, gave me a different perspective of the way I see the Saõ Francisco ecosystem and its elements.

A very devoted catholic mother, in a poor female-headed family, raised my sister and me with close ties to relatives, neighbors, and friends whom comprised our extended family. Since I was a child, I have been hearing from different media sources, such as television and radio, about the environmental situation of the Saõ Francisco River basin and the social condition of its inhabitants. Nonetheless, what struck me the most was that, the news, in its majority, related to the hardness of living in such a harsh environment, with seasonal drought and mostly under a semi-arid climatic zone. As a child, it was difficult to understand why people do not just leave the place, why the government does not do anything to solve the problem, and why the situation can be so difficult if the Saõ Francisco River is a permanent source of water. However, as an adult, with an undergraduate degree on Economics from a Brazilian university, a Master degree on Natural Resources: Environmental Conservation from [NLGU] and as a current student in the PhD. Program on Natural resources and Environmental studies at [NLGU], I understand that the problem, as well as its solutions, is not as simple as a child could dare imagine, and national contexts and variables can make the matter worse.”

[...]

As a researcher, specifically an observer, I seek enlightenment, skill, well-being, respect, and rectitude ([Reference A]). I want to learn about the environmental, social, and economic history of the area under investigation; be able to put into practice some of my knowledge; be able to have recognition of my work independently of my race, gender, and social class; and be a model of ethical behavior.
Gabi included this passage in her research methodology under “observational standpoint” and argued that such explicit description of her perspective was an integral part of her qualitative research method.50 “We need to show bias,” Gabi explained. “In my case, for example, as I describe that, I have to show that I have a bias, too, if I overemphasize the need for public participation.” Unlike researchers in the hard sciences who strive for objectivity, Gabi believes “objectivity does not exist.” Gabi argues further, Because when you chose what I want to study, that is very subjective, you know (laughs). But in the methodology we have some steps to avoid not being objective. We have some steps to follow: “I have this questionnaire. I’m going to apply this questionnaire to this group. And I have my data there if somebody’d like to verify that. And blah blah blah.” You have this, what’s it called, research protocol to follow, but we leave it clear that the observer’s standpoint, we cannot be as objective as some scientists.

Gabi said that Don, an economist by training, has repeatedly advised her to leave these passages out, particularly in her fellowship proposals, but Gabi has continued to use them. Not only is this information critical to Gabi’s research methods, but it is also a conscious attempt to retain her identity as a member of her home community and to make her research relevant to Brazilians. Gabi has expressed some concern with just how different her Brazilian and US identities have become. “When I go to Brazil,” she lamented, “I feel different, because it’s hard to explain to someone that I have been writing this for three or four years, and I’m going to a place to interview people, but what am I going to do with that, you know?” Gabi has even translated some of her course papers into Portuguese and published them in popular Brazilian environmental magazines, partly to show her family what it is she does, and partly as an attempt to bridge her academic and home identities, two worlds she fears are drifting further apart:

50 Many qualitative researchers in composition studies share Gabi’s view on identifying the researcher’s perspective, though many disagree on the extent to which the researcher should describe her own perspective in the study. For more on this discussion, see Chiseri-Strater (1996).
That is the reason why I think—another reason why—I published that article in environmental magazine helped me with was that to know that there is a big wide world outside of that, and why should I be doing all of this if they [Brazilians] will not have the access to the information. That goes back to what Julie always say to the real world, you know. The real world, you know, how can I make this [points to “virtual water” article] be understandable for those people, you know in that real world. Especially because the academic, how many reports have been published and stuck in a library, and no one makes use of that, you know? That is important, how do we connect those two worlds, because here in the US, my life is an academic life, but in Brazil it is different [emphasis added].

This conflict Gabi feels between her academic and home identities leads into our final discussion concerning the negotiation of cultural and linguistic identities.

**Developing Cultural and Linguistic Identities: Negotiating Language, Culture, and Access**

Perhaps most critical to this present study are the highly-imbricated nature of identity, language, culture, and issues of access, not to mention the effect these issues have on affective factors such as learner confidence and motivation.

At the most basic level, one must note that the process of identity construction varies significantly from culture to culture. Numerous studies in English for academic purposes have explored the differences in professional and academic identities across cultures (Canagarajah, 2002a; Englander, 2009). As we see later in this section, whether a learner plans to return to her home country after graduation determines how she negotiates these identities. Such a shift entails a meta-awareness of what it means to be an academic in either context, and what experiences will assist in navigating these identities.  

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51 Kanno (2003), in fact, distinguishes between “immigrant” and “sojourner” identities, and argues that a student planning to remain in the host country is more invested in appropriating its values and practices,
More significantly, Norton (1997, 2000) and Ortmeier-Hooper (2007, 2008) situate identity construction within the context of larger geopolitical and cultural systems, which links identity to notions of access and affect. Norton (1997), summarizing Cornell West, argues that

Identity relates to desire—the desire for recognition, the desire for affiliation, and the desire for security and safety. [...] People who have access to a wide range of resources in a society will have access to power and privilege, which will in turn influence how they understand their relationship to the world and their possibilities for the future. Thus the question, “Who am I?” cannot be understood apart from the question “What can I do?” (410).

With international doctoral students, this notion of access is critical. Given the role English has assumed as the international language of scientific research, proficiency in English is necessary for accessing valuable scientific networks and funding and for receiving recognition in wider scientific networks—even if the student returns to her home country. Thus, using Norton’s terminology, these students are often highly invested in learning English, as doing so determines their range of possible future selves. And, as I have found in the case of many of my participants, their most significant language learning occurred after they realized just how critical the language is to their professional development, and within the context of their academic work (thus resulting in a very discipline-specific vocabulary). Also critical, however, is the extent to which learners identify with communities of practice in their home country and their host country—whether they see themselves as insiders or as outsiders to either community—and the identity the home communities attach to the learners, which, as Ortmeier-Hooper (2008)

while a "sojourner"—a student planning to return to her home country—must often develop multiple cultural identities.

52 Norton (1995) offers learner "investment" as an alternative to learner "motivation," as discussions of motivation are often confined within discussions of individual difference and personality. Investment, in Norton’s view, better accounts for the learner’s position with respect to larger social power structures.
has argued in her research on multilingual students in a high school bridge program, also
determines the possibilities one has within a given community.

This notion of identifying as a cultural "insider" or "outsider" is critical to the
enculturation within an academic community of practice and to language learning. Since
coming to the US, Gabi has accumulated a rich body of experiences which has informed
her identity as an academic, though most of these experiences have occurred in US
settings. Recently, Gabi has had the opportunity to publish her article on "virtual water"53
in a Brazilian research journal, and in the process, she has had some opportunity to
network with Brazilian scholars, particularly the journal editor. However, most of the
legwork for the project—not to mention, all the feedback she received on its
composition—were from colleagues in a US setting. For better or worse, Gabi's entire
academic identity has been informed by her cultural experiences in the US.

Several times throughout our interviews, Gabi identified this issue as being a
potential problem. Ideally, she would like one day to find a faculty or research job in
Brazil, but she has no idea just how plausible that goal is. As Gabi explained, she had
very little interaction with professors at her college in Brazil, mostly because both she
and the professors had other jobs and obligations before and after class. Before coming to
the US, she had a vague idea of what being a professor meant, but most of her current
ideas of professional life have come from her interaction with professors at NLGU,
including how to balance research and teaching time, how much of each to expect, etc.

53 The journal published articles in both Portuguese and English. Ana published the paper in English, since
it had already been written that way for a class.
More significant than how Gabi identifies herself is how Brazilian scholars identify her. Both Gabi and Julie noted that academic communities in Brazil tend to be exclusive. Gabi referred to these communities as *panelinhas*, or “little pots”:

And there are sometimes these *panelinhas*, they fight for the same resources. I think that is one of the major problems. In Brazil, grants are so few, fellowships are so few, and because there is a harder competition, they close the door. Like if I arrive in Bahia and I start asking questions about one project, they probably would not answer to you, because they expect that I will steal their idea, or something like that. [...] If you’re part of that *panelinha*, great, you go to free concerts, you go to lunches and dinner party, you go to conference. And if you are not, you are in big, big trouble.

Gabi mentioned she had met some resistance while conducting field work in Brazil for her dissertation; while she did have some help from local researchers, she got the impression she was viewed as an outsider—as an American researcher—despite her Brazilian heritage. Publishing her virtual water article in a Brazilian magazine might help establish her in Brazilian academic communities. Still, as Julie has explained, navigating between these contexts—and determining the means by which her work will have the most impact on Brazilian environmental policy—will continue to be one of the biggest issues with which Gabi will continue to wrestle in her future career trajectory.

Ana, another participant in this study, contrasts with Gabi in very interesting ways. Ana, a Colombian student researching fisheries management strategies for local fishing villages, differs from other participants in this study in that she holds a faculty-research position at a Colombian institution, to which she is obligated to return upon graduating.54 Unlike Gabi, her academic experiences have been pretty equally distributed across US and Colombian contexts. For example, she also conducted fieldwork in her home country, but since she had already established herself within Colombian academic

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54 See participant bios in chapter 2 for more description of Ana’s case.
circles, she benefitted from full cooperation and input from the Colombian research community. Many of the Colombian fishery experts she consulted, she pointed out, already knew about her from other local research initiatives in which she had participated.

Ana has an advantage over Gabi, in that she has seen what it means to be a professional in both American and Colombian research settings. She does not always identify with both settings, however. Ana still strongly identifies as a Colombian researcher and as somewhat of an outsider to the US research community. Further, and perhaps even as a result, she tends to be overly-conscious of herself as a non-native English speaker and is frequently worried about not being understood in English-speaking research contexts. Granted, she is highly invested in learning English, but she also tends to be insecure about her English usage. Thus, she often closely monitors both nonverbal and verbal feedback from native English speakers, in some cases to the detriment of her confidence.

For example, when giving a trial dissertation proposal defense in front of her lab mates, she looked frequently to another international graduate student seated at the front table anytime she feared she was not pronouncing a word correctly. Often, the thrust of the sentence would be clear, but Ana would still stop to check the pronunciation. Such over-attention to pronunciation cued her lab mates to point out issues of pronunciation in the question and answer period following her presentation, and while Ana appreciated this sort of feedback—in fact, in a follow-up interview, she voiced the fear that her lab mates were being nice and not correcting her enough—it still served to reinforce her identity as an outsider to the native English speaking community. In one instance, a lab
mate questioned Ana’s pronunciation of the acronym for the Food and Agriculture
Organization (FAO), which Ana pronounced as a word—/fau/. After a debate among lab
mates as to whether they had heard others in international organizations pronounce it in
this way, the original commenter ended with, “We would probably just say F-A-O.”

A similar incident occurred in our second interview, which we conducted via
Skype. Ana had been in Colombia collecting data and had been speaking almost
exclusively in Spanish for several months. Before starting the interview, Ana apologized
multiple times for her rusty English. To begin the interview, I asked Ana to describe her
field of study. She stumbled through a highly scripted elevator statement which I had
seen her write and had heard her give numerous times before:

A: Um… (thinks) Now I am doing… well I’m trying to do… my field subject is
focused on… fisheries management. Marine fisheries management. What we are
trying to do is to… organize a little bit the… chaos? [Uses Spanish
pronunciation, “Caos”] Chaos. chaos or caos?
S: Keep going…
A: But do you understand what I’m saying?
S: Well I didn’t get that word, but keep going and I might be able to make it out.
A: (Thinks) C-H-A-O-S.
S: Oh, Chaos.
A: Ok, that one. So what scientists is trying to do is organize a little bit the…
Cheeos,
chaos…
S: Chaos.
A: Chaos, thank you, that is… that is… a situation that is coming… from around 30
years… for… I mean. If, the situation is getting worse from thirty years before.
And it is around the world. So, what we are trying to do is to put in place… or to
say another word… to… try to to… to try to find… Harmony?
S: Yea.
A: Between the people using resources, fishing resources, and at the same time to
keep the… marine ecosystems in good health, in good… yea. So between the
uses… between the uses and the… normal… oh! I haven’t spoken for around 4
months in English.
In this exchange, Ana got very hung up on the word “chaos.” I was encouraging her to continue with the sentence, knowing I would figure out the meaning from context, but she was very focused on that word, fearing I would not understand her.

Gabi, unlike Ana, tends to be much more confident about her English proficiency and spends much less time second-guessing herself, a fact attributable to her heavy absorption into American academic culture. However, this confidence has come at a cost: she is much more isolated from local Brazilian research communities and will have a much harder time fashioning an academic identity in that context.

**Conclusion**

Theoretically speaking, this chapter lays critical groundwork for the chapters to come. The process of constructing academic identities is complex and inevitably distributed, even for native English speakers such as myself. The cultural and linguistic transitions Gabi must go through in her own learning trajectory, however, adds several layers to the process that I would not have to think about in my own trajectory. For example, even though composition studies is becoming increasingly international, I seldom have to think about whether the academic writing skills I have acquired in my own educational context will translate to others.

One reaction to this chapter might be to consider ways EAP instructors, writing program administrators, and graduate advisors could make this process less complicated for students, or at least better consolidate the process of providing feedback to graduate students, but I would argue that this might not be possible, or even advisable. While negotiating the diverse, and often contradictory, feedback is frustrating for Gabi at times,
it is also fairly rewarding. She benefits from having multiple perspectives on her work, which gives her several different options for orienting herself and allows her to select those options that work best for her. Participants in my study who worked more closely with just one advisor often did not have this opportunity.

What we can consider—and what I will explore further in chapter 6—is how best to structure writing support so it better accounts for the highly distributed nature of academic identity construction and provides students with more explicit knowledge of this complexity. Our default mode of writing support, for example, is to offer it early, with the idea that the writing course will prepare students for later academic activity. The downside to this approach, however, is that students are often left with little writing support later in their academic careers when they are writing higher stakes documents and having to forge an academic identity for themselves.

It’s also significant to note the aspects of Gabi’s identity construction process that were fruitful for her, as these are areas in which we might try to support other students’ development. Gabi had a very high meta-awareness of her developing academic, disciplinary, and cultural identities and talked very specifically about ways they informed her perspective on her work. When I talked about my findings with Gabi, in fact, she was able to speak quite explicitly about her own identity and to point out critical aspects I had overlooked (such as how culturally-specific her notions of identity are). This meta-awareness—this overt knowledge of her own individual learning trajectory—gives her a very specific focus for academic activity in which she engages and helps her see how past experiences—personal, disciplinary, or cultural—inform her work.
CHAPTER 4

LEARNING TO BE AN ‘IRREVERENT’ GRADUATE STUDENT:
ORIGINAL THINKING, OWNERSHIP, AND FEEDBACK RELATIONSHIPS IN THE LEARNING SYSTEM

One of the things that I find in international students is that most of them are far more conciliatory than American students. You know, I think one of the greatest things the American educational system has going for it is *irreverent graduate students* who will challenge their professors, challenge basic ideas. But to do that, well you need to know the culture and be confident that you’re ok to do that.

—“Jack,” Professor of Natural Resources at NLGU

One might expect when speaking to environmental sciences faculty that they would identify grammar as the most salient obstacle to multilingual graduate students’ success writing for their fields. At least, writing specialists often characterize professors in the disciplines as being overly conscious of NNES’ linguistic shortcomings, even if our research suggests otherwise (Braine, 2002; Rubin & Williams-James, 1997). Although many program faculty interviewed for this study indicated NNES’ grammar to be a problem, most have also had enough experience with NNES students or colleagues to realize that language learning will be a lifelong process for multilingual graduate students. Further, most faculty acknowledged that grammar can be edited, but stressed that no amount of editing can salvage an article that does not contribute any ‘new’ or ‘original’ research to the scientific community. It is this last issue that many faculty participants identified as the most significant cultural obstacle for international students with whom they have worked.
Jack, the founding head of NLGU's environmental sciences program, indicated that creative thinking is central to scientific research, yet he has often found it difficult to get international students he has worked with to move beyond simply "doing what they're told" to exploring novel ways of solving familiar problems. Further, as indicated in this chapter's epigraph, he often finds his own international students to be "far more conciliatory than American students" and less likely to challenge an idea in class or in the literature. John, who advises a student participant in this chapter, likewise stressed that in graduate school, "you have to think original thoughts, carve your own path," particularly given the competitiveness of academic publishing and research funding. "I think it is a tricky transition," John admitted. "It's a tricky transition for all graduate students. It's especially a tricky transition for graduate students who come from cultures which have more respect for received wisdom. And it's a problem you see all the time in reviewing papers from China. I would say the language can be dealt with. This is a larger systemic problem."

Like Jack and John, I believe this notion of 'original thinking' to be critical to advanced academic literacy learning, as it separates simply learning content in a graduate seminar from learning to be a professional in one's field. At a more conceptual level, though, the issue is highly complex, as it requires multilingual graduate students to negotiate a variety of highly interrelated factors. At the most basic level, the confidence to strike one's own path academically requires students to have a certain degree of ownership over the disciplinary content and over the language in which they are required to work. Moreover, thinking originally goes hand-in-hand with the ability to express original thoughts and to argue for their importance, which requires a degree of rhetorical
and linguistic savvy. Finally, as John suggests, numerous cultural factors are at play, as well, among them notions of individuality and authority, and differences in educational and research contexts. In short, learning to be “an irreverent graduate student”—or at least learning to argue for the significance of one’s work—often requires students to lean quite heavily on advisors’ feedback, a paradoxical situation to say the least.

In this chapter, I focus more specifically on the feedback loops learners—as adaptive, self-organizing systems—use to acquire rhetorical and linguistic strategies for thinking and/or writing “originally.” In particular, I focus on the feedback relationships between two oceanography students—Salman and Girmit—and their advisors (the shaded section in Figure 4.1). In both of these cases, the students maintain close, productive one-on-one relationships with their advisors. In the next chapter, I hope to contrast this version of advisor-advisee feedback with a case in which the feedback a student receives is much more distributed.

![Figure 4.1: Learning system, with an emphasis on feedback relationships.](image)
The Paradox of Learning to Think “Originally”

Numerous studies of academic writing and publishing have discussed the rhetorical moves scholars make to argue for the significance of their work (Berkenkotter & Huckin, 1995; Blakeslee, 1997; Hyland, 2004; Myers, 1985a, 1985b; Swales, 1990, 2004; Tardy, 2009). Most oft-cited is Swales’ (1990) study of research articles, wherein he posits the “CARS” model of “Creating a Research Space” within an article’s introduction. Swales demonstrates how scholars begin by establishing a territory for their research by claiming a study’s importance or reviewing previous studies and move to “establish a niche” by making a counterclaim, indicating a gap, raising a question, or continuing a tradition. Scholars’ final introductory move is to place their own project within this niche and outline how their findings might fill this gap, answer a critical question, etc. As Myers (1985b) discovered with his study of two seasoned biologists writing for publication, one’s success publishing a paper often hinges on how well one positions her study vis-à-vis the research community to whom she is writing.

Berkenkotter and Huckin’s (1995) study of academic genres uses a sociohistoric lens to examine how scholars promote their own work, likening the reading of an academic work to the reading of a newspaper. Scientists reading scholarly literature, they maintain, often rely on cognitive schemas to scan quickly through research articles in search of novel or newsworthy findings. They offer two reasons for this trend. First, they argue, “the world of science is embedded within modern, post-industrial culture, which can be characterized as a ‘promotional’ or ‘consumer’ culture” (p. 43). It is unsurprising, they assert, that the competitiveness and consumerism of the larger culture would influence scientists’ own views toward their subject matter. Moreover, they argue that
"the need to promote one’s work seems to be a response to the greatly increased competitiveness of modern science (p. 43). Scientists are pressured to publish in well-cited, ‘international’ journals, as doing so not only affects opportunities for promotion within their institutions, but also better their chances for receiving much-needed, competitively-awarded external research funding, a necessity given the high costs of scientific research.

However, researchers such as Canagarajah (2002a, 2002b, 2006b) have highlighted the cultural and political nature of these academic writing practices, thus providing insight into why some international graduate students might struggle to learn them. Drawing from his own experiences returning to the University of Jaffna in Sri Lanka after completing a doctorate in the US, Canagarajah argued that the individualist, agonistic stance assumed by US- and European-based scholars is often unnecessary—and even discouraged—in many local research communities. In fact, he recounts one instance when his Sri Lankan colleagues criticized an article he wrote for displaying "an aggressive individualism that bordered on unseemly pride, attention-grabbing, and self-congratulation" (141). He recalled that many local researchers felt "the need for an agonistic stance—with the accompanying emotional aggression and unabridged individualism—was motivated by the working condition of center academic communities" (e.g., receiving tenure, winning grants, competing with other academic institutions) (141). Given the material conditions of academic work in the Sri Lankan research community, scholars preferred to develop a community ethos in their writing—i.e., constructing claims in ways that benefit the local community and contribute to—rather than supplant—communal knowledge (Canagarajah, 2006b). For scholars coming
to the US after researching in local contexts (such as Girmit in this study), adapting to this competitive work environment and adopting US-based research values inevitably takes time. Ramanathan and Atkinson (1999) and Atkinson (1997) caution that the “individualist” orientation of academic writing in US contexts may clash with more communal or connected ways of knowing valued by other cultures. Thus, in many cases, international students in US graduate programs may not only be learning how to approach problems in novel ways and how to argue for the significance of their work, but may also need to learn just what US professors and academic communities expect from them in the first place. The value placed on thinking on one’s own and forging one’s own path is often so culturally embedded in the material working conditions of US academic institutions that teasing out and articulating these values to students—and, from a student’s perspective, understanding these expectations when they are articulated—is extremely difficult.

While these cultural factors are critical, I would like to extend this discussion to explore the processes by which these crucial academic literacy skills are learned. While the implicit emphasis in many US educational settings is on the individual student’s development, sociohistoric research on learning has demonstrated the thoroughly social and intersubjective nature of learning and development. Lave and Wenger’s (1991) study of legitimate peripheral participation, for example, describes the process by which learners start from more “observational” stances on the periphery of a community of practice and, through increasing degrees of authentic participation within the community, come to understand the nature of that community’s practice—they are both “absorbing

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55 Education and learning researchers from Dewey (1916/2007) to Rogoff (1990, 2003) have commented on the US educational system’s implicit (and often explicit) focus on individual development.
and absorbed in the ‘culture of practice’” (p. 95). Sociohistorical research from Vygotsky (1978, 1986) to Rogoff (1990, 2003) and Wertsch (1991, 1998) have stressed the role of shared problem solving and intermental functioning in this learning process. Drawing from Vygotsky’s zone of proximal development (ZPD), Wertsch (1991) argues that all cognitive activity occurs first on the social plane (i.e., “intermentally”) before becoming a part of a learner’s internal mental (or intramental) thought process. That is, working closely with colleagues or advisors provides learners with an overview of possible approaches to a research problem, which they can then synthesize into their own “novel” approach. Thus, even if students work on a task alone, they are still reliant on other learners, advisors, or professionals for cues and feedback on proper disciplinary practice.

Herein lies the paradox in learning how to conduct and write ‘original’ scientific research: while students (native or non-native English speaking) are expected to produce their own work, they can only do so by appropriating the language, activity, and ideas of others with whom they come into contact. Inevitably, their work is both their own and not their own, though the expectation—at least in US educational settings—is that they will claim ownership of what they produce. The ability, the willingness, and the confidence to do so vary considerably depending on the amount of exposure students have had to practice within a given community and any number of personal, disciplinary, or cultural factors (among them, the issues of power and authority John alluded to earlier in this chapter). That is, while both native and non-native English speaking students may struggle with learning these generic conventions, students with experience in overseas research or educational contexts may have a different array of factors affecting how they learn them, or what difficulties they experience learning them (Canagarajah, 2002a;
Tardy, 2009). We see a link here with the discussion of individual learning trajectories in chapter 3: the array of experiences students bring with them to academic writing, and the identities they have constructed for themselves as learners and researchers—will inevitably affect how they view and accommodate to generic conventions in US research settings.

Systems approaches to experiential learning (Georgiou et al., 2008; Laszlo, 1969), Educational Systems Design (Banathy & Jenlink, 2001; Jenlink, 2004) and organizational or cooperative learning (Flood, 1999; Senge, 1990) share the sociohistoric emphasis on the interrelationship between a learner and her environment. Consistent with chapter 1’s discussion of the ecology of learning, Laszlo (1969) describes the learner as a “self-stabilizing, self-organizing” system that continually makes hypotheses about her environment, takes actions based on these hypotheses, receives feedback on these actions, and adjusts both her further actions and her perceptions of reality accordingly. That is, he posits experience as the driving force of learning, and posits the learner as continually trying to reorder and reorganize puzzling aspects of her environment based on environmental feedback. As we discussed in chapter 1, this feedback is more than just advisor’s comments on students’ work; rather, it is any information, explicit or implicit, that a learner uses to make sense of experience—explicit praise or criticism from an advisor or colleague, a quizzical look on a colleague’s face, or an article being accepted or rejected by an academic journal.

In Figure 4.2, I’ve adapted Laszlo’s useful, albeit oversimplified, diagram of an experiential learning feedback loop. At the top, “E” is the learner’s “effective environment,” or the reality the learner perceives based on her current needs. “P” is the
Figure 4.2: Laszlo’s (1969) model of a self-stabilizing, self-organizing human learning system

The learner’s attempt to perceive or explain this reality, which is then mapped onto “C,” or the “Gestalt systems” with which the learner interacts and which provides feedback on her rendering of her environment. In cases where there is a mismatch between a learner’s perceptions and the feedback she receives (i.e., “C1”), she responds by adjusting her perception of reality and resubmitting the new version for additional feedback, to which she again responds by adjusting her view of reality. In this way, the learner is continually organizing and reorganizing her environment based on her needs and hypotheses—a transactional view of lifelong learning.

While I hope to paint a more complex portrait of learning in this chapter, this model is a good starting point for examining the iterative process by which multilingual graduate students use feedback from their environment to learn how to conduct and write “original” scientific research. There are two components of this model that I find
particularly valuable. First, it emphasizes the role of learners’ needs in the learning process: according to this model, learning occurs when learners perceive a “need”—something in their environment that is puzzling or unknown. This emphasis on needs highlights the limitations of writing or language instruction that occurs outside contexts meaningful to students. I have found in all the cases in this study that learners had difficulty knowing how to apply language instruction if they had not yet experienced a situation in which the knowledge was needed, or, at least, they felt more invested in language learning when they understood how it fit into other academic activities. Second, this model emphasizes the role of feedback—positive or negative—in learners’ development. This feedback—or, in cases where learners have a source of feedback on which they rely regularly, these feedback relationships—inevitably shapes one’s development as a functioning professional in a community of practice. Understanding the dynamics of these feedback relationships will be particularly helpful in chapter 6, when we consider ways of structuring writing support so that it complements students’ existing feedback networks, helping them make more efficient use of the feedback they receive and, perhaps, supplying them with information they may not now be receiving.

Data and Participants

This chapter draws mostly from interview and textual data collected from Salman, Girmit, and their advisors. (See chapter 2 for a list of data collected from these participants and a description of data analysis methods). In each case, I collected multiple drafts of a document participants revised with advisor feedback, thus allowing me to see how participants negotiated their own goals with their advisors’ goals and the process by
which they learned linguistic and rhetorical strategies for describing the significance of their research projects. In addition, I observed each participant present their research to faculty and colleagues and observed their general interactions with lab mates and advisors on several occasions. While the two presentations differed significantly—Salman presented research during a student-lead seminar, while Girmit defended his dissertation prospectus before a crowd of faculty and lab mates—the differing ways in which participants claimed or deferred authority over their subject matter in these presentations provide additional insight into the degrees of ownership they assume over their research in their writing.

Additionally, since Girmit had prior experience publishing portions of his master’s thesis in a local South Pacific environmental journal, and since this previous experience might have shaped how he approached writing his dissertation prospectus, I selected four recent articles from a similar local journal—South Pacific Environmental Journal (“SPEJ”), one from each of the four most recent years. The introduction and conclusion sections from these articles were analyzed rhetorically for places where authors sought to create a research space for their own study (Swales, 1990, 2004) or argue for the novelty of their claims (Berkenkotter & Huckin, 1995). I then compared these findings to Girmit’s own rhetorical moves in his master’s thesis (written at a Fijian university) and the rhetorical stances his advisor coached him into taking in his

56 In Salman’s case, I focused on his revisions to his Master’s thesis, though I also examined multiple drafts of his dissertation prospectus. In Girmit’s case, I focused more exclusively on his dissertation prospectus, though I consulted the final draft of his Master’s thesis to get a sense of his previous history with academic writing in English.

57 The journal name has been changed.

58 SPEJ is published annually.
dissertation prospectus (written at NLGU). This comparison provides a larger cultural perspective on the difficulties Girmit experienced writing in a US academic context.

Below, I have provided brief descriptions of participants discussed in this chapter.

**Salman and Bill**

Salman, a Pakistani man in his early thirties and a native speaker of Urdu, researches sonar technology necessary for ocean mapping. More specifically, he studies methods for reducing uncertainty in “backscatter,” a technical term for sound waves that have bounced off the ocean floor and are collected and analyzed by sonar technicians. Salman received his bachelor’s degree in oceanography from a university in Pakistan before coming to the US in 2002 to join his family, many of whom lived in Philadelphia. After arriving in the US, Salman researched ocean mapping programs and decided to enter the program at NLGU. Salman worked with the same advisor—“Bill”—for both his master’s and his doctorate.

Salman’s advisor, an internationally-known researcher with his hands in a number of research projects, reports seeing considerable growth in Salman since his early days as a master’s student. Salman, by his own account, lacked confidence both in his language skills and in his subject knowledge. He constantly feared that he was not being understood both in his writing and in class discussion. Bill keeps a hectic travel schedule and has limited time for one-on-one meetings with students. As a joke, in fact, students posted a map in the break room with the header “Where’s Bill?” and little pictures of Bill in a red-striped hat indicating places he has traveled. Nonetheless, Bill is very approachable, and Salman has spent many hours in Bill’s office going over his writing.
Bill comments extensively on Salman’s work, and Salman generates copious drafts. Salman had, in fact, preserved a thick staff of thesis drafts on his book shelf, arranged chronologically and dated—the “documentation” of Salman and Bill’s relationship, according to Bill.

Bill indicated that over the course of his graduate education, Salman has grown increasingly confident as a scholar and as a writer and has become more “aggressive” anticipating and fielding questions about his research. Further, he remarked that while Salman used to come in for conferences to practice oral presentations, he did not come in once when preparing for his dissertation prospectus defense. Salman, on the other hand confessed to being more interested in a research position than in an academic post, as he feels he’s “not up to the writing part.” “There’s a fear in me,” he confided, “if I have to start an academic job, I will not be able to write grants and proposals, and probably will not be getting a lot of grant money. So, that’s just a fear in my head. I don’t know if it’s realistic or not.”

**Girmit and John**

Girmit is an Indo-Fijian man in his late twenties studying physical oceanography. Girmit’s dissertation research uses computer modeling programs to study the circulation and temperatures of waters in the Chesapeake Bay. Girmit’s first language is Hindi, though he has been speaking Hindi and English interchangeably for as long as he can remember. Further, English has been his primary academic language throughout his education.
Girmit and John’s relationship is intriguingly complex. The two men are polar opposites in many ways. While Girmit is tall and quiet, John is short and outspoken. John, considerably younger than other faculty advisors interviewed for this study, attacks his research projects with intensity, energy, and a lot of confidence. At Girmit’s dissertation proposal defense, John was very much in charge, and Girmit constantly consulted John’s body language while presenting. At one point, Girmit started answering a committee member’s question but changed his answer completely—midsentence—when he saw John shake his head no. John also has a blunt and pragmatic perspective on most issues, and his frankness is often startling. However, John also has a tender, nurturing side and is very sensitive to issues of cultural difference. And even if he is blunt in critiquing Girmit’s work, he is also very encouraging; though he had to rush off after Girmit’s proposal defense, he took the time to pull Girmit aside in the hallway and offer him warm words of encouragement. He is also open to Girmit stopping by his office any time he has a question.

Girmit is appreciative of this close working relationship, particularly considering his mentoring experiences during his master’s program in Fiji. His principal advisors taught on two separate islands—one in Fiji, and one in New Caledonia—and Girmit would literally travel back and forth between the islands getting feedback on his thesis, a process he described as “an endless loop.” He would receive revision suggestions from one professor, but would need to completely undo these changes after showing it to the other.

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59 John’s wife is a graduate student from Croatia. He often referenced his wife’s struggles with academic writing when speaking of Girmit’s.
While Girmit does not have the same difficulties with linguistic proficiency as other participants in this study, John believed that Girmit still faced huge cultural hurdles in the process of acquiring advanced academic literacy:

The biggest cultural issues that are important here are, to what extent is he doing my work, to what extent is he doing his own creative work? When should he ask for help? In the past I’ve found he hasn’t asked for help soon enough, and he hasn’t objected soon enough when I’ve given him lousy advice. He has gone off and worked on lousy advice well past the point where he realized I was wrong—where it would be better to say, John, or Sir, or whatever, are you sure you meant to say that? Or are you completely baked?

In other words, the challenge for Girmit is to take a research project that his advisor has provided for him and to somehow make it his own—to develop his own creative solutions to the problems he and John have outlined. Further, Girmit must learn strategies for selling his work to the larger academic community and, at times, challenging approaches taken by other researchers in his field, something which Girmit is admittedly reluctant to do.

**The Cases**

In the following cases, I will more closely examine the processes by which Salman and Girmit utilize environmental feedback. As Laszlo (1969) demonstrates, learning for each of these students occurs via a series of transactions with their advisors and their environment, whereby they receive feedback on their performance and adjust their views of writing accordingly. As we will see in these particular cases, thinking “originally” paradoxically requires these participants to lean heavily on their advisors’ ideas and feedback. Furthermore, as discussed earlier in this chapter, the confidence required to “take ownership” of one’s work is affected at a fundamental level by a host of
other factors, among them the degree to which they feel a sense of “ownership” over
disciplinary content and over the use of academic English, and their knowledge of
rhetorical and linguistic conventions for stating the significance of their work.

Participants’ Sense of Ownership of English and of Disciplinary Content

Intriguingly, both Salman and Girmit have used English as their primary
academic language throughout their schooling, though Salman feels much less confident
about his degree of English proficiency.

Salman attended an English-medium school in Pakistan, but though the course
lectures and textbooks were all in English, Salman maintains English played a very
minimal role. Pragmatically speaking, the need to use English, Salman recalls, was not
apparent to students, and much of the English language instruction was too abstract for
students. “The textbook was in English,” Salman explained, “but then we couldn’t
understand it, then [we] would go back to our local language to explain to us what does
this mean actually. So the more explanation went into our own language.” Salman
admitted that often he simply memorized information in English and copied it down on
exams. “I was not comfortable in English,” he said, “so I was not understanding what was
written on the paper, and I was very uncomfortable failing the exam, so I was forced to
do the memorization. And that was true I think for most of the students.”

Salman believes it was not until much later in his education that he perceived a
need for English and started using it “more as a tool than as an abstract thing”:

In the very initial stages from first grade till I would say sixth grade, it didn’t
make sense. Because we were learning all the trees that grow in England, for
example. All our textbooks were talking about names of places that were in
England—Oxford and Leicester and… It didn’t make any physical sense to us.
But then we started talking about physics in high school, and chemistry, and then the things were right in front of us.

Further, Salman also acknowledged that at some point his strategy of memorizing text no longer achieved the desired results, particularly when he entered college and “the textbook got really thick.” “At that point,” he joked, “memorization was a total loss.”

Salman’s lack of confidence in his English proficiency and in his writing limited the degree of ownership he could take over his writing. His uncertainty as to whether he was being understood often made his writing seem tentative and much less authoritative, and, as we will discuss later, it caused him to overcompensate by explaining ideas and methods in more detail than readers felt necessary. Though Salman was fairly proficient in comprehending oral and written English when he came to the US for his master’s degree, he admits “there was a lot of trouble in actually writing and actually speaking so that someone else could understand. Like initially, during initial classes, it was hard for me to explain myself to the instructor. Mostly I was shying away of not asking any questions.” Even as Salman’s language proficiency developed, he continued to be very self-conscious—overly conscious, according to his advisor—of his ability to express himself. Further, Salman believed that the writing instruction at his undergraduate institution in Barachi did not prepare him for writing in more advanced academic settings. Salman explained that “the standard there was if you can write English which seems coherent, that was thought of as good English writing. So it was not like we were getting a lot of feedback from that process.”

Similarly, Salman struggled with his sense of ownership over the field of ocean-mapping, itself, which might raise questions about his investment in his subject matter. Unlike other participants who cited highly personal reasons for entering their fields—e.g.,
Gabi’s desire to improve poor Brazilians’ quality of life (see chapter 3)—Salman more or less fell into his field of study. When I asked Salman in our first interview why he chose to study ocean-mapping, he laughed and diplomatically corrected my assumptions:

In poor countries—or in third world countries, I would say—it’s not a matter of like what you’re interested in. It’s not like a psychology test like everybody has to take and decide what you are interested in. It’s more like, which college is near your home? And can you easily commute over there? Or which colleges are present in your in your city? It’s not like that. In my case, it was a scholarship I got from government. [...] It has nothing to do with whether I was interested in ocean sciences or not. At the time I just thought any science is good.

Salman, in fact, chose to move to Barachi and study oceanography without ever having seen an ocean before. While he has, over the years, developed an intense interest in his research subject, he still admits to having more pragmatic career goals.

According to his own assessment and his advisor’s, Salman has progressed considerably as a professional in ocean mapping, though a drawback to studying in an interdisciplinary field is that Salman is constantly encountering problems requiring background knowledge he does not have. Unlike other participants in this study, Salman’s choice of dissertation topics was not so much decided by what fascinated him personally as by more pragmatic questions, such as whether he could get funding for the project, or whether the topic required an engineering background. Salman, however, was very tactical in probing his advisors for feedback on whether a topic was within his reach. When deciding on a dissertation topic, for example, he started by going to the National Science Foundation (NSF) website and making a list of recent projects they had funded. Based on projects which attracted the most funding, he wrote short abstracts of four possible topics and discussed them with his committee members, taking note of which topic received the most uptake. His advisors indicated that many of the topics he started
with—such as AUVs, or automatic underwater vehicles—necessitated a background in engineering and fabrication Salman didn’t have. While Bill indicated to me in an interview that Salman still did not have a strong initial background for “backscatter research,” the field was wide open for new ideas. By this time, Salman had already developed some highly successful strategies for using advisor feedback to mitigate his lack of background knowledge, though as we will see later, this process often involves a lot of drafts, a lot of comments, and a lot of revisions.

Unlike Salman, Girmit is more comfortable with his English language proficiency. Girmit attended a predominately Gujarati Indian public school where he used English “starting from day one,” not to mention his mother taught high school English. Other than having to toggle between British and American spellings, he does not experience the same language difficulties as other participants in this study. Further, as John indicated, Girmit lives in on-campus housing and is more immersed in American academic culture than other participants. Girmit stresses, however, that his language proficiency does not necessarily give him an advantage when writing. “My inexperience in my field keeps me at bay,” he joked.

Like Salman, Girmit had pragmatic reasons for studying oceanography. Girmit’s primary interest is physics, and after graduating with his bachelor’s, he was left searching for an outlet for his interests. His advisor alerted him to a scholarship to study oceanography, and he pursued the opportunity. Also like Salman, Girmit felt uncomfortable with his background knowledge in physical oceanography, and given the variety of subjects he would need to study in an interdisciplinary program, felt that he was quickly in over his head. Girmit stressed that he had taken only two years of
oceanography before coming to NLGU, and he felt wholly unprepared. After coming to NLGU, Girmit was able to take fluid dynamics courses in the mechanical engineering department, and John customized many of his own courses to cater to Girmit’s research project. Still, Girmit reported feeling overwhelmed after returning from his first major oceanography conference by the breadth of material in his field, and by just how much he felt he didn’t know. “There’s so many fields in there,” Girmit said, reflecting on the conference, “and it’s sort of a big headache. […] They were talking about so many things that you didn’t know about, and so many things that you knew, but you didn’t know they could be applied this way. There was so much. I think after we came back, almost everyone went into a slump (laughs).”

For Girmit, thinking originally and establishing ownership over his work was an uphill climb, as he constantly encountered new situations requiring him to lean on his advisor’s expertise. More challenging for Girmit, however, was the fact that he did not choose the project he would study for his dissertation. As is common in many graduate programs in the natural sciences, Girmit started working on one of John’s ongoing projects, as John had already laid the groundwork and secured funding for the study. Further, John was in contact with several onsite researchers in Maryland with whom he and Girmit correspond. In his interview, John stressed that it was important for Girmit to “start taking ownership of the problem,” and to start thinking his own thoughts instead of John’s. Taking “ownership,” however, is naturally more difficult to do in this situation. As we will see later in this chapter, given the collaborative nature of the project, it is difficult for Girmit to determine which aspect of the project is “his” and which is his advisor’s.
Learning Rhetorical and Linguistic Strategies for Expressing Confidence in Writing

Both participants struggled with expressing confidence in their writing and in their research and were continuing to learn how to argue for their work’s significance, two factors which are very closely related. On the surface, participants’ difficulties with academic writing manifested in very similar ways, though on closer examination of these cases, we find that these difficulties were caused by a very different network of factors, thus complicating our efforts to tease out the degree to which these are “language and culture” issues or issues related to students’ unfamiliarity with disciplinary conventions. The reality is that a number of factors—language, culture, disciplinary conventions, even personality—contributed to participants’ experiences.

As discussed in the previous section, participants’ comfort using English as an academic language and their comfort with their subject matter play a critical role in their ability to speak with authority in their field. However, each participant entered into their current educational settings with a different set of previous academic writing experiences—and different individual learning trajectories. Some of these experiences transferred to writing in US academic contexts, but some did not. Add to this the fact that as doctoral students writing for eventual publication in their fields, they were expected to perform as members of this community of practice to some degree, requiring them to develop a sense of what information is important or new to the academic community and which information is trivial. Further, they needed to learn how strongly they, as newcomers to their academic fields, can challenge other researchers’ claims and what academic moves compromise their authority as community members.
These rhetorical and linguistic strategies are hard to glean from the published research in the field and, for any number of reasons, might even seem counter-intuitive to participants. Participants learn these strategies through an iterative trial-and-error process whereby they receive explicit or implicit feedback on their successive attempts at completing academic tasks. Perhaps what is most difficult for students to acquire from these feedback relationships, however, is a meta-awareness of what they are changing and why. In some cases, participants were able to explain why advisors made the corrections they did; in others, participants struggled to extract the general principles from advisor feedback.

**Salman, Feedback, and Recursive Revision Strategies, or How to Sculpt The David in Fifteen Minutes a Day**

Salman’s writing process is similar to Michelangelo’s purported method for sculpting *The David*: you start with a chunk of marble and chip away pieces of stone that don’t look like David. The difference, however, is that at this stage of Salman’s development, everything still looks like David. Salman is an over-writer. “I tend to put everything on paper,” Salman explains. “Whatever I’m thinking, whatever I’m reading.” As Bill explained, this tendency to overwrite is Salman’s method of processing information. “Salman is coming to the backscatter field with probably not the best background to do that,” Bill said. “But he has a lot of initiative, and he wants to document it, and it’s important for his learning process.” The problem, Salman maintains, is whittling down his texts—a process which takes much longer than he would like—and doing so in a way that communicates his research’s significance.
Salman’s master’s thesis, which used sonar technology to study fishing-induced disturbances on the seafloor, was a significant learning experience. The writing process was twice as long as he planned, spanning two years and fifteen drafts. The data collection process lasted two years, after which Salman assumed “writing up”\textsuperscript{60} his research would be fairly easy:

I thought like I’m very prepared to just go and produce a final document. So when I started writing the first time, it was like 300 page document (laughs). And my advisor said like, it’s huge! And I think the problem was I was not feeling like I could use few words to explain myself. So instead where you would use—or someone who knows English—would use just one sentence and be content with it. I was explaining the same thing over and over again, thinking that one way or another somebody, whoever’s reading it, will understand what I’m trying to say. So I think I had, you can call it a lack of confidence in my writing skills.

As Salman indicates here, his excessive writing was a strategy to compensate for not being understood, or to assuage his fear of not being understood.

Perhaps the bigger bone of contention between Salman and his advisor was the detail with which Salman described his methods. Figure 4.3 shows an excerpt from Salman’s methodology with Bill’s comments. In this excerpt we see Salman’s tendency to describe not only his method but the thought process behind his decisions, as well:

“We were able to distinguish bottom marks very easily by just taking number of differences between 1 m grid (best resolution grid) and up to 25 m grids of 8125 survey. The best difference surface for discerning the bottom marks was then identified [...]”

Bill’s feedback here, as with other places throughout the thesis, was to “describe just what you did: difference surfaces were calculated for… then the result.” In Figure 4.4, I’ve included a side-by-side comparison of Salman’s original draft and his revisions in

\textsuperscript{60} Kamler and Thomson’s (2006) \textit{Helping Doctoral Students Write} challenges the use of the phrase “writing up” in research writing, as it minimizes the role writing plays throughout the research process—it’s not just that thing you do when all your data is collected, as Salman discovered.
Figure 4.3: Excerpt of Salman’s master’s thesis with advisor feedback

his final thesis. Though the passage isn’t necessarily shorter—he did need to add more
details on the specific instrument and parameters he used—one can see Salman took
Bill’s advice and focused more exclusively on naming and describing the procedure he
used.

Salman had several explanations for his tendency to over-explain methods. Of
course, he attributed this practice to not knowing how much knowledge his audience
needed, an issue plaguing all novice science writers to some degree. His solution was
often to provide his advisors with several iterations of what he felt was important and to
use their feedback to prune his writing. Salman provided the following analogy for this
process:
If you have to tell someone to go to your house, and he has never been to your city, you’ll have to give him everything. But if I know a Dunkin Donuts which is right next to your house, you can just tell me the Dunkin Donuts is right there, and second street to there is my house. I think when I’m starting with the project, I don’t know anything about it, so I feel like I should have everything in the document, and that kind of orients me whether it’s important and what’s not. [...] I start with a lot of information, because I don’t know where I’m going (laughs). So I’m just looking for clues, like, where can this go? And then after some time, I cut back on it and just get the main points out.

That is, Salman’s overwriting is tactical: he provides advisors with too much information and relies on their feedback to determine what is useful. He then uses this feedback to adjust his path accordingly.

Figure 4.4
Side-by-side comparison of Salman’s methods—describing “just what he did”

<table>
<thead>
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<th>Salman V. 1</th>
<th>Salman V. 2</th>
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<td>The analysis was suited for the problem at hand where several of HPF surfaces at thresholds were required and no reasonable assumptions could be made about frequency of occurrence of bottom marks. <strong>We were able to distinguish bottom marks very easily by just taking number of differences between 1 m grid (best resolution grid) and up to 25 m grids of 8125 survey</strong>. The best difference surface for discerning the bottom marks was then visually identified to be difference surface of 1 m and 5 m grids. The details were enhanced even more by surface shading. The results of difference surfaces of 2, 5, 10 and 15 m grids from 1 m grid are presented in figure ???.</td>
<td>The approach described above was used to identify fishing gear impacts in the multibeam sonar bathymetry data. As no reasonable assumptions can be made about the frequency content of bottom marks, filtering needs to be done at several scales. <strong>The Reson 8125 multibeam sonar generated digital elevation models that were constructed at 1, 2, 5, 10, and 15 m resolution and imported into Fledermaus, where difference surfaces were constructed. The difference surface between the 1 m and 2 m grids showed the dredge marks most clearly</strong>, particularly when illuminated by artificial lighting. The results of the 2, 5, 10, and 15 m grids from 1 m grid are presented in Figure 4.3</td>
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1 Salman narrates not only the methods but his thought process behind them. Bill prompts him in his marginal comment (Figure X) to “Describe just what you did.”

2 Salman’s revision focuses more on naming and describing the procedure used to distinguish “dredge marks” on the ocean floor.
However, Salman also indicated that over-describing his methods performed a rhetorical function in his mind, albeit one that backfired and revealed his inexperience. In one instance, Salman recalls describing six different ways he approached a problem he encountered in his work, detailing his thought process for eliminating approaches that did not work. His advisor, as before, suggested that he include only the approach that worked. Salman, however, felt it necessary to account for the six months he spent on the problem:

> What I was trying to do is to be very upfront, and I was kind of like thinking if I don’t put it there, like if like somebody would like to see how I spent my two years, and I just put the things that worked, nobody would believe I spent two years on it *(laughs)*. That was kind of like for my own safety, I was trying to put everything there, and then trying to understand like I did all this work, and didn’t work. But I think that approach is different here, in American culture and American scientific culture. If you did a big mistake, somebody else can learn from it, they want to put it there. But if it’s just a trivial mistake, it’s not important for other people to know about it. But being a student, *everything* is important for you, because it’s your life. So why shouldn’t I put it there? *(laughs)*

That is, Salman’s methodological detail was intended to show his transparency and honesty as a researcher, an ethical appeal intended to carve out research space for his project. As Bill indicates implicitly in his feedback, however, Salman is thinking more as a student trying to justify his mistakes to a teacher than as a scholar contributing new knowledge to the scientific community.

Salman indicated that Bill constantly directs him away from elaborate descriptions of methods and toward more explanation of his study’s significance to the field. Salman ultimately accepts Bill’s sense of what is “significant information,” though not before a good bit of back and forth between the two, as Salman explains below:

> After all this thesis and final conclusion paper, I wrote my conclusions, and my advisor said like, whatever you’re writing there makes sense. Because my conclusions are if you want to produce these products, you have to follow this
process, and that’s it. And he’s saying, no. Your conclusion should be like, how does it get applied to the wider world? Like how can a fisheries person come in and use your thesis? And I said like, that’s not what I did. And it doesn’t matter. Because you didn’t write your thesis to explain how did you do this work. You are writing your thesis here to explain how does it contribute to science. And unless you make that connection, it’s not important. And it took me three months to understand why it’s important. And my conclusions are always different from him. He would bang his head like, no no no no! This is not what’s important! What is important is how does this relate to the field?

While the process of determining what is or is not important is a negotiation of sorts—drawn out over a series of drafts, feedback, and revisions—ultimately Salman realizes the critical role Bill plays in communicating essential information about the academic community Salman is engaging. The difficult task for Salman is extracting from this specific feedback relationship with his advisor general principles that will allow him to determine what is or is not important on his own.

While Salman acknowledges that his difficulties with writing stemmed from his unfamiliarity with academic writing conventions and audiences, he stressed repeatedly throughout our interviews the interrelationships between rhetorical and linguistic factors on his writing. As I mentioned in chapter 1, Salman likened the writing process to “cooking,” in which he had to combine the basic ingredients—“your conventions,” “your grammars,” “your vocabulary”—so they come out as a “good reading.” Writing researchers might be tempted here to compare Salman’s metaphor of “writing as cooking” with Peter Elbow’s (1973). However, unlike Elbow’s cooking metaphor—which describes “cooking” as something that happens internally within a writer—Salman’s conception is very much an interactive one. According to Salman, he relies on others with “better taste buds” to indicate how well the various pieces are working
together, a confession in line with the sociohistoric emphasis on shared problem solving and intermental functioning.

The other interesting departure in Salman’s metaphor of cooking is the idea of having to balance a number of different factors in order for the dish to come out right. Here, Salman’s lack of confidence in his own writing abilities come into play. Even in early drafts of his dissertation proposal, Salman was repeatedly frustrated by his lack of linguistic resources for expressing his ideas. When writing his literature review, for example, he noted his overuse of the word “however” when expressing the relationships between studies in his field. Not to mention, Salman felt many of his first attempts to explain the relationship between previous studies and his own were awkwardly worded, again something he attributes to his lack of linguistic resources. In Figure 4.5, for example, I have included a side-by-side comparison of a passage from the motivation section of his proposal. In Salman V.1, Salman attempts to explain his project’s significance by first describing what his project does not do, a passage he originally felt was long and awkward. In Salman V.2, which is actually several drafts later, Salman simply states the purpose of his thesis, which not only avoids the awkward comparisons, but communicates his idea more clearly. (Again, we can almost hear Bill’s voice—just tell us what it’s about!)

As one can see in Figure 4.3, Bill attended to matters of grammar and style through direct correction and rewriting of text. Both he and Salman admitted that Bill was not always able to explain why he made the changes he did. “I know when something doesn’t sound right,” Bill admitted, “but I don’t know the rules.” Salman would often grow frustrated when he was unable to establish patterns for the corrections
Acoustic methods aim to infer physical properties (e.g. grain size, porosity, impedance, density etc. for seafloor; plankton/fish density, bubble population etc. for water column) from acoustic observations. The investigation of the physical properties of the ocean is made possible by knowledge of the relationships between acoustic and other physical properties. Therefore, the relationship between ocean’s acoustic properties and other physical properties has been an area of active research. However, this thesis is not about the relationship between acoustic properties and other physical properties of the ocean water and the seafloor lying underneath. But this thesis will explain¹ how well we can measure the acoustic properties of the ocean floor using present acoustic remote sensing methods. The question about certainty of the acoustic observation is important because all the subsequent characterization schemes work essentially using acoustic observations. Any uncertainty in the acoustic observation is expected to introduce uncertainty in the inferred physical properties of the ocean.

The main aim of this thesis is to explain how well we can measure the acoustic properties of the ocean floor using present acoustic remote sensing methods.²

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¹ Salman attempting to explain the relationship between his research and other studies.
² Many drafts later, Salman cuts the text explaining what his thesis is not and simply states what it does.
Bill made, and expressed feeling embarrassed by some grammatical issues with which he struggles, even if Bill has assured him they did not impede understanding (e.g., article usage). In some cases, Bill explained, Salman’s grammar isn’t as bad as he thinks—the issue is more Salman’s lack of confidence in his writing, which often prompts a cycle of dependence on Bill’s feedback, as we see in Figure 4.6.

Figure 4.6: Feedback relationship between Salman and Bill, with emphasis on Salman’s cycle of low confidence and dependence on Bill.

**Girmit, Salesmanship, and the Paradox of ‘Original Thinking,’ or Return to the Suva Lagoon**

John indicated numerous times how critical it was for Girmit to learn how to emphasize the novelty of his research and to ‘sell’ his ideas to the academic community, something John felt was lacking in Girmit’s previous education and in many overseas
research contexts. Pulling from his own experiences reviewing manuscripts for professional journals, John stressed that in cases where he has rejected manuscripts from overseas scholars, it was more often due to the authors’ inability to stress the novelty of their approaches than their English proficiency—i.e., they did not present anything “new” or “interesting.” Inevitably, creating a space for one’s research often involves critiquing existing studies and approaches, something Girmit felt uncomfortable doing. By extension, coming up with novel approaches to his research project and communicating this novelty necessitates knowing what the research community considers “new” and “significant,” and Girmit was heavily dependent on John for feedback on community expectations.

Several critical differences exist between Girmit’s discussion of his own research in relation to others’ in his master’s thesis as compared to his dissertation proposal written under John’s tutelage. Girmit admits not critiquing other studies in his master’s thesis, a study of water circulation in Fiji’s Suva Lagoon. Such critique was unnecessary, Girmit explained, as there was so little research on his subject area. Thus, much of his thesis involved providing taxonomic descriptions of the region, reporting computer modeling results, and suggesting directions for future studies. Girmit generally referenced scholars only when necessary to relate what was already known about the site or to provide rationale for his methodology, as shown in the following passage:

There have been several successful 3-D models applied for coastal lagoon to predict river plumes, sediment transport, winds and tides [18 citations]. The 3-D multi-layered model used for this project was developed and described by [citation A]. This model has hydrodynamic and turbulence components and can determine the velocity fields, sea-level heights, spatial and temporal distributions of salinity due to the tides, river runoff and wind forcing.
Further, Girmit tends to minimize his contributions to the field, choosing to offer his research more as a resource for other studies than as a critique—as a “crucial tool for marine research in the Suva Lagoon” and “a database of water properties [...] for other studies.” Girmit closes his thesis by modestly downplaying his study’s importance:

We conclude by remembering the memorable words of Newton (1727): *I do not know what I may appear to the world, but to myself I seem only to have been like a boy, playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary; whilst the great ocean of truth lay all undiscovered before me*. In light of these words, the contributions of this project can be summarised as that of finding a smoother pebble along the shores of knowledge.

Girmit was not able to say whether his reluctance to critique others’ work in his master’s thesis was a convention common to other research written in the local academic context in Fiji, or if it was simply a personal preference. It is interesting, however, to examine other articles submitted to *The South Pacific Science Journal (SPSJ)*, a journal similar to the one in which Girmit and his colleagues published portions of their Suva Lagoon study. In many cases, rather than critiquing other scholars’ work, researchers attempt to build what Canagarajah (2006) has called a “community ethos.” That is, researchers would often frame a study’s significance in terms of its impact on local concerns, and would seek to build on past studies rather than critiquing them. For example, *SPSJ* 1, a study of lagoon degradation and management in a coastal town, made no attempt to critique other studies and framed its study’s significance in terms of “maintaining the aesthetic value” of a nearby tourist resort. In cases where researchers did indicate a niche for their research, they generally did so by stating simply that no other studies have been done on their subject, with little or no follow-up. For example,

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61 Readers will see a parallel between Girmit and Tardy’s (2009) Chatri, who also struggled to state the significance of his claims, and who possibly experienced similar cultural obstacles as Girmit in doing so.
SPSJ 2, a study of barometric pressure on sea level variations, states only that “studies have been done on the effects of barometric pressure on sea level variations ([citation]) but none have been done in the South Pacific region,” before ending the introduction and launching into a brief literature review of studies performed elsewhere. One can only speculate on the degree to which Girmit was influenced by these rhetorical conventions, though it is likely they played some role in how he wrote previous to his experience at NLGU. At least, these conventions might have influenced the feedback Girmit’s previous advisors gave him.

Girmit acknowledged that the rules of the game changed after coming to NLGU. The writing, he reflected, was much more theoretical. As Girmit explained,

My current professor’s idea,” Girmit explained, “is that you sort of develop an idea on what you are expecting to see […]. So discussion was like more on developing theory, and once that’s developed, then we go actually go back to the dataset and try to pinpoint where you can actually see these things happening, and these are observations where you can actually see that happening.

That is, good writing involved more than just reporting results; rather, Girmit’s current project required a good deal more problem solving, and it required him to pose a governing theory for what he observed in the data. Moreover, the stakes in this project were much higher. Girmit and John were working from a dataset that had been published more than a decade earlier and had been used for numerous published studies. Getting published—and acquiring research funding—necessitated a fresh perspective on familiar data.

Looking at three successive drafts of Girmit’s dissertation proposal 62 (with advisor comments) reveals the process by which John leads Girmit toward more

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62 These three drafts will be referred to as Girmit Version 1 (V1), Girmit Version 2 (V2), and Girmit Version 3 (V3)
time it takes to adjust to these changes. Normally changes propagate through the estuary by advection or as a wave. The adjustment period of an estuary to coastal ocean changes is important because if the estuary has not adjusted to an initial perturbation, then the dynamics of the estuary are still in a transient state. This is important because results from [Mac99] show that for intermediate depth estuaries (for depths 20-40 m), the adjustment times range between 20-25 days. The Chesapeake Channel depth is about 30 m, so it is important to consider the adjustment time. The wind-reversal period in the MAB coast is on the order of a few days. Knowing the adjustment periods gives an idea of what may be happening in the estuary depending on the frequency of the coastal forcing. [Mac99] investigated the estuary adjustment time scale to changes in river flow and tidal mixing coefficient. The adjustment time scale depends on the extra salt flux entering the estuary due to the transient change and the change in total salt going from initial to final steady state. In this study, we will focus on the adjustment period, with advection and internal waves, as a means to reach a new steady state due to disturbances in the coastal ocean (in particular by wind forcing).

**Figure 4.7:** Excerpt of Girmit’s dissertation proposal (version 1) with John’s comments

explicitly arguing for his study’s significance. In Figures 4.7 and 4.8, I have included excerpts from Girmit V1. As we can see, John is terse and direct in his comments. The vast majority of comments throughout Girmit V1 aim to push Girmit to better emphasize his project’s significance, and while there are some cases in which John indicates what Girmit should include, most of his comments are questions (e.g., “How are you going to change mixing?”) or terse statements (“who cares”) designed to prompt Girmit to offer his own conclusions.
In Mac99, the estuary is classified into shallow (diffusion dominated, 5-20 m), deep (exchange dominated, >40 m) and intermediate (20-40 m) depths. This allows us to select the appropriate type of estuary and its related steady state salinity solution (eqns 4.9 or 4.12 from Mac99). This salinity solution would be helpful in finding the adjustment time scale (similar to Mac99). The wind-induced changes (for example, from upwelling) at the estuary entrance can be simplified into a perturbation in the pycnocline depth. Using the ratio between change in total salt and the new salt flux, the adjustment time scale can be calculated [Mac99].

In both figures, Girmit relies heavily on a particular source—“Mac99”—to provide rationale for his own study, much as he did in his master’s thesis. In Figure 4.7, Girmit explains Mac99’s results and poses his study as an extension of one part of Mac99: “Mac99 investigated the estuary adjustment time scale to changes in river flow and tidal mixing coefficient. […] In this study, we will focus on the adjustment period, with advection and internal waves, as a means to read a new steady-state due to disturbances in the coastal ocean.” Similarly, in Figure 4.8, Girmit provides three citations from Mac99, and in many ways tries to make his own procedures seem as similar to Mac99 as possible, an attempt to lend credibility to his own study. John prompts him three times in these two pages alone to explain the differences between Mac99 and his own study. Elsewhere in Girmit V1 (Figure 4.9) we see Girmit, again, list
3 Effect of Alongshore Current Variations on Estuary

3.1 Introduction

There have been numerous studies on the changes in the estuary and its effect on the coastal ocean [FG01], [FG02], [Mac99], [Len94], [LLL99], [Gar99], [MG93] & [GAR87]. The effect of the coastal ocean on the estuary is subtle but significant, e.g. the adjustment of estuary by advection and internal waves due to coastal ocean changes. The volume of water entering the estuary carry in species of coastal organisms that maintain the recruitment levels which sustains the marine populations. Several studies in Chesapeake Bay have investigated the exchange flows, flow patterns at entrance and spatial gradients in the estuarine channels [V KW96], [LLRA98] & [VL A99]. Investigations by [V KW96] show the effects of modifying seaward discharge in estuary, coastal ambient flow, coastal ocean bottom slope and initial salinity gradient. The study showed that an ambient coastal flow influences the exchange flows of the estuary. [V KW96] explains the effect as a barotropic pressure gradient caused by the difference in the free surface height \( \eta \) inside the estuary and in the coastal ocean. For large difference in \( \eta \) (no coastal flow case), the northern wall of the channel has greater outflow, while for sufficiently strong southern flow, the difference in \( \eta \) can be low or reversed causing less outflow or greater inflow. Our proposal extends this aspect of the study by [V KW96], to investigate the parameters that would be important in understanding the dynamics of the exchange flows.

Figure 4.9: Excerpt of Girmite’s dissertation proposal (version 1) with John’s comments

the studies on this aspect of his project in his introduction. Again, John’s marginal comments prompt Girmite to challenge these studies. John suggests that Girmite challenge two particular studies, in one case even describing the limitations Girmite should highlight: “VKW does limited runs, but he does not identify the parameter space in which this would work. What have they NOT done that you will do?”

Granted, Girmite does attempt to challenge existing studies in other parts of Girmite V1, though John often intercedes and comments on just how forcefully he should do so.
For example, in the opening section, Girmit lists several studies related to his topic and argues that “The physics of this mechanism has not been studied but alternate explanations have given on similar observations [citations A & B].” In addition to commenting on the grammar and clarity of the sentence, John counters the claim—“Yes it has—Rossby Adjust problem”—and suggests softening the claim: “This statement is a bit strong—‘No consensus has been reached...’”

In Figure 4.10, I’ve included a side-by-side comparison of Girmit’s successive attempts to explain how his work extends the Mac99 discussion. We see that Girmit begins to describe the difference between the two, though John, in his comments, prompts Girmit further: John crosses out the sentence starting with “the adjustment time” (which others in the field might already know) and indicates the main point of difference—the “adjustment period.” However, John still objects to Girmit’s description of the study, only this time he states more specifically what Girmit should include. Girmit V3 assumes a much more agonistic stance toward Mac99 (i.e., “his assumptions break down”). Similarly, Girmit uses John’s comments almost verbatim when revising the text in Figure 4.9 to describe “VLA’s” limitations, which we see in a side-by-side comparison in Figure 4.11.

Girmit has improved considerably in V3 in arguing for his study’s significance, though in doing so he has relied heavily on his advisor’s suggestions. While this reliance is, no doubt, necessary for novice scholars, it also puts him in a somewhat paradoxical situation: he needs John’s guidance, but ultimately he needs, according to John, to conduct his research in his own way—to think his own thoughts instead of John’s. “I’m interested in how he matures intellectually,” John had noted. “How he starts taking
Girmit V.1 | Girmit V.2 | Girmit V.3
---|---|---
[Mac99] investigated the estuary adjustment time scale to changes in river flow and tidal mixing coefficient. The adjustment time scale to change depends on the extra salt flux entering the estuary due to the transient change and the change in total salt going from initial to final steady state. **In this study, we will focus on the adjustment period, with advection and internal waves, as a means to reach a new steady state due to disturbances in the coastal ocean** *(in particular by wind forcing).*

[Mac99] investigated the estuary adjustment time scale to changes in river flow and tidal mixing coefficient. The adjustment time scale to change depends on the extra salt flux entering the estuary due to the transient change and the change in total salt going from initial to final steady state. **In this study, we will focus on determining the zone of coastal influence and the adjustment period by considering advection, internal waves, friction, and mixing processes.**

[Mac99] investigated the estuary adjustment time scale to changes in river flow and tidal mixing coefficient. **His results are valid for narrow estuary** *(width W < radius of deformation R_d). For wider estuaries (W > R_d), his assumptions break down. Our study will look at wide estuaries where the cross-estuary gradients in hydrography are significant.*

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1 Girmit originally poses his study as an extension of Mac99
2 In his comments, John crosses out the line beginning with “The adjustment time…”
3 Girmit starts to describe the difference between his study and Mac 99.
4 Girmit critiques Mac99, thus opening space for his study
Figure 4.11  
Side-by-side comparison of Girmit's revisions to Figure 4.9

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<td>[VKW96] explains the effect as a barotropic pressure gradient caused by the difference in the free surface height ( \eta ) inside the estuary and in the coastal ocean. For large difference in ( \eta ) (no coastal flow case), the northern wall of the channel has greater outflow, while for sufficiently strong southern flow, the difference in ( \eta ) can be low or reversed causing less outflow or greater inflow. The discussion by [VKW96] is based on limited number of model experiments and a parameter space has not been identified, so the results from the study are difficult to apply to other estuaries with difference dimensions. Our proposal would expand the qualitative study by [VKW96], into a quantitative work² by investigating the relevant parameters and finding the parameter space that would be important in understanding the dynamics of the exchange flux as a result of alongshore ambient flows and dimensions of the estuary.</td>
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¹ Girmit posits his study as an extension of VKW96.  
² Girmit uses John's advice and identifies the limitations of [VKW96] and describes the differences between the two studies.
ownership of the problem—so that when he runs into an intellectual problem, his first thought is to think about it, not to find the perfect citation." The ultimate challenge for Girmit is how to take "ownership of the problem" while relying on John for clues on how the problem can best be solved.

As suggested earlier, however, "ownership" is a fuzzy notion in cases such as John and Girmit’s where they are working together on a project that doubles as Girmit’s dissertation. It was often difficult for Girmit to determine which aspect of the project he "owned." In Girmit V1 and V2—not to mention all the interviews—Girmit typically used the first person plural pronoun "we" when talking about his project. John commented on this issue at the top of Girmit V.2, bluntly prompting Girmit to pay better attention to his pronouns: “We→I Your thesis!!” (In contrast, John regularly uses the second person pronoun or the imperative voice when responding to Girmit’s work).

In Girmit V3, Girmit corrects the pronouns in the first paragraph but is inconsistent with his pronoun usage throughout the remaining document:

By combining relevant dimensional parameters into non-dimensional parameters, we are able to apply the results to a wider variety of estuary-coastal ocean systems. By studying these idealized estuary-coastal ocean interaction, I can better understand the physical and biological processes in realistic modeling experiments and observations. (emphasis added).

Whatever attempts Girmit made to monitor his pronoun usage in the proposal was lost in the actual dissertation proposal defense, where he used "we" to refer to his project throughout the presentation. The interaction between John and Girmit in this setting was interesting, however, in that it was clear John still retained some degree of ownership in the project. Several times throughout the question and answer period, John jumped in to expand on Girmit’s answer or to answer a question Girmit had trouble answering. In one
case, a committee member participating via Skype asked a question about "stratification" that puzzled all of the graduate students in attendance, partly because it was difficult to hear the question clearly, and partly because it was not clear what was prompting the question. John came to Girmit’s rescue: “We are going to look at tides. [...] Girmit and I are struggling with what the best way of doing this is.” The interesting part of John’s response is that he uses the first person plural when responding initially, as the project is, after all, collaborative; however, I got the sense while listening to John speak that halfway through his response, he grew conscious of the fact that he may be co-opting Girmit’s project. “Girmit and I” seemed a move intended to place some of the project’s ownership back on Girmit.

**Learning to Take Ownership of One’s Work**

Salman and Girmit’s cases provide numerous insights into the experiences of international doctoral students learning to take ownership of their work and into the role the advisor-student feedback relationship plays in students’ developing independence. In particular, juxtaposing their stories with other participants in this study reveals several critical differences that affect their performance on academic writing tasks.

First, Salman and Girmit’s individual learning trajectories differed considerably from other participants’. Unlike the three other participants in this study who entered the program at NLGU with strong personal reasons for pursuing their research topics, Salman and Girmit more or less fell into their fields of study and chose their research topics for more pragmatic reasons. Salman has grown incredibly invested in his research over the years, as was clearly evident when I observed him present his research to a
group of graduate students in his lab; however, the process has taken considerably longer than it did for Gabi and Ana, both of whom pursue their research topics with near missionary zeal. Granted, passion for one’s research is not essential for becoming a successful researcher, but Gabi and Ana’s deep personal investment in their projects makes it easier for them to take ownership of their work. Further, because Gabi and Ana have a stronger sense of where they would like their research to go, they are more likely to challenge advice they are given from their advisors if they feel it contradicts their plans for their work, particularly in Gabi’s case, as we saw in chapter 3. Girmit lacks this “bigger picture” perspective and is less likely to question advice his advisor has given him, as we see from John’s statement at the beginning of this chapter.

One should remember, however, the assumptions Salman identified in my own questions about his reasons for entering his field. Many of us who come from industrialized nations have come to expect students—particularly graduate students—to have highly personal reasons for choosing their fields of study, and we are sometimes be surprised by students who have more pragmatic reasons for entering a field. Inevitably, these cultural assumptions can affect our perception of how invested a student is in her research.

Second, both Salman and Girmit have much closer one-on-one feedback relationships with their advisors than any of the other participants. In Figure 4.12, I have included a rich picture of advisor relationships that I will return to and discuss in more detail in Chapter 6. The picture utilizes the “learning system” model introduced in chapter 1, with students’ “individual learning trajectories” (ILT) in the far left box, “outcomes and beneficiaries” (O/B) on the right, and “activity” stationed in the center.
The light gray boxes connected to the activity represent feedback from students' primary advisor (or in Gabi's case, advisors, as we saw in chapter 3), and the dark gray boxes are other sources of feedback (e.g., other faculty and students, peer reviewers, writing classes or writing centers, etc).

In this figure, one can see there is a range of feedback relationships students have with their advisors. Girmit, who has a very strong relationship with his advisor, rarely solicits feedback from anyone other than his advisor, and when he does, this feedback is typically mediated by his advisor. Ana's advisor is deeply invested in his students, but his...
busy schedule limits the one-on-one feedback he can provide. Thus, he relies on others in his research group to contribute to providing feedback (hence the pyramid formation), and scaffolds her development in a much more “structural” way by helping her secure research funding, by introducing her to networks of researchers in her field, and by commenting on end-stage documents. Paulo’s advisor, as we will see in chapter 5, left NLGU for another academic post. While Paulo still receives some feedback from his advisor, he must also seek feedback from an array of other sources.

There are both advantages and disadvantages to the close, one-on-one feedback relationships Salman and Girmit have with their advisors. The obvious advantage, of course, is that Salman and Girmit receive more explicit direction on disciplinary values and writing conventions. As we will see in Chapter 5, Paulo, in one case, must submit a manuscript for publication without any advisor feedback. Thus, he has to rely on feedback from journal reviewers to inform him of disciplinary conventions an advisor could have pointed out before submission (e.g., that his manuscript was far too long). The disadvantage, especially in Girmit’s case, is that students with close one-on-one advisor feedback relationships often do not seek out other sources of feedback and do not benefit from multiple perspectives on their work. For Girmit, John functions almost exclusively as his window into the profession, thus making it difficult for him to take an approach to his project other than the one John would take. Both Gabi and Paulo are forced to enter into multiple feedback relationships. And since, as we saw with Gabi, these sources of feedback often conflict, the student must pick and choose which advice to accept. As a result, their approaches to their work tend to be more creative and original as a result, though they have a more difficult time acquiring disciplinary writing conventions.
Most striking in these cases is the number of interrelated factors affecting both participants’ performance on academic writing tasks and their ability to synthesize advisor feedback. As we saw with Salman’s “cooking” analogy, Salman saw his linguistic proficiency and his disciplinary knowledge to be virtually inseparable. By necessity, students such as Salman often seek out linguistic support apart from their disciplinary instruction, but appropriating and applying knowledge from these alternate linguistic resources is always difficult, particularly if the friends or teachers struggle to understand the disciplinary content in the student’s writing. Most compelling with Salman is that both his linguistic proficiency and his disciplinary knowledge are affected by his confidence level. As we saw with Ana at the end of chapter 3, students’ low confidence levels often cause them to be overly conscious of their errors (even when colleagues and faculty members assure them that their linguistic errors are minimal) to observe colleagues’ nonverbal feedback too closely for places where they are not communicating well, and to overcompensate when they feel they are not being clear, often confusing matters more in the process.

Moreover, as John indicates, numerous cultural factors affect Girmit’s reluctance to challenge John’s feedback and to assume a more agonistic stance toward research in the field, though one cannot overlook the obvious personality difference contributing to this reluctance, as well. Girmit, while not shy per se, is a quiet and passive person. John had to interrupt him several times during his prospectus defense to ask him to speak louder for the benefit of committee members participating via Skype. Further, the interaction between Girmit and John during the defense itself illustrates John’s formidable presence. While presenting, Girmit constantly observed John’s body language
to gauge how well he was answering questions. John would also interrupt periodically to rephrase a committee member’s question or to redirect Girmit in cases where John felt he was on a tangent. At one point, John cut in during Girmit’s response to say he was “overthinking the question.” Girmit stopped, smiled, and changed his answer to a simple “yes.” Again, John is a very encouraging and devoted advisor, and Girmit mentioned on several occasions that he appreciates John’s confidence, as it helps him have confidence when presenting his research. At the same time, Girmit struggles to match John’s confident demeanor in their interactions, though both John and Girmit acknowledge some growth in this area.

Lastly, in both cases, we see how important it is for participants not only to apply advisors’ feedback but to develop a meta-awareness of what they are changing and why. In most cases, advisors’ feedback is heavily embedded in a particular writing task and is not always accompanied with sufficient explanation of why changes are being made. In Salman’s case, Bill is generally not able to explain his sentence-level corrections. Bill does alert Salman when he is not emphasizing his study’s most important conclusions. Salman, however, has difficulty transferring this feedback to his work on other writing tasks. When the writing task is similar, Salman naturally is able to transfer this knowledge. Salman recalled having an easy time writing an article for publication based on his thesis research. However, when writing his dissertation proposal, he found himself back at square one negotiating with his advisor which points to emphasize. In Girmit’s case, he is very aware that he is expected to write differently at NLGU than at his previous university in Fiji, but he does not see the cultural dimension of these differences that his advisor has identified. In fact, while John saw Girmit’s cultural transition to be
fairly significant, Girmit stated several times in our interview that he did not see any
significant cultural differences between the two educational contexts. It is possible that
Girmit is unaware of some of the culturally-embedded expectations his advisor has of
him, or at least is not fully aware of the degree of independence these expectations
require.

As I have been arguing, learning advanced academic literacy practices is a highly
integrated process for these students. The challenge for writing programs, EAP
instructors, writing centers, and writing in the disciplines programs is to consider more
holistic ways to support students while they are engaged in this process, rather than
relying exclusively on introductory EAP classes to prepare students for later writing
activities (or, as is often the case, placing the burden of learning disciplinary writing
conventions squarely on the shoulders of students). Many would argue that it is the
advisor’s responsibility to prepare students for future writing in their professions, and
while this is to some extent true, we must acknowledge the reality of advisor-student
feedback relationships. In some cases, advisors’ schedules make it difficult for them to
provide international doctoral students with the sort of direct one-on-one feedback
relationships they might need. And even in cases such as Salman’s and Girmit’s, where
the advisor is able to provide this support, the advisor might feel unprepared to help with
students’ linguistic concerns, not to mention, the student might benefit from external
sources of feedback to help process advisors’ advice. As writing instructors, we cannot
expect to perform the critical role a disciplinary advisor plays in a student’s professional
development, but we can supplement the advisor’s feedback by helping students make
better use of additional potential feedback relationships (i.e., peer writing groups, writing
consultants, etc) and by helping students develop a meta-awareness of advisor expectations and disciplinary writing conventions. In chapter 6, I plan to revisit some of the issues in this present chapter when discussing more holistic approaches to writing support.
CHAPTER 5

WADING IN ACADEMIC CIRCLES: THE ECOLOGY OF PUBLISHING AS AN INTERNATIONAL DOCTORAL STUDENT

My goal throughout this study has been to explore the socialization of international doctoral students into academic practice from an ecological perspective—to view learners as highly complex, adaptive, self-organizing systems responsive to environmental feedback. So far, I have advanced this argument in parts. In chapter 3, I explored the development of academic identities from an ecological perspective, demonstrating both the vital role doctoral students' fluid and evolving academic identities play in how they approach academic activity and how they appropriate these experiences for future use. In chapter 4, I examined the dynamics of feedback relationships in doctoral students' academic development, demonstrating the differing ways students respond to feedback, particularly in the context of the advisor-advisee relationship. In this chapter, I put these parts together and adopt a systems view on the process by which Paulo, a Brazilian student researching deforestation in the Amazon, navigates the intricacies of writing for publication.

This chapter is particularly significant for two reasons. First, as I explain in the following section, writing for publication has become an increasingly important part of graduate education. Unlike course papers for graduate seminars, which might have no audience other than the professor and classmates, writing for publication is a much higher-stakes activity, prompting students to move beyond the typical student identity
and to learn, often by trial and error, the complexities of disciplinary practice. A significant body of research in writing in the disciplines and English for academic purposes explores writing for publication both in North American contexts (Bazerman, 1988; Englander, 2009; Myers, 1985a, 1985b) and overseas (Curry & Lillis, 2004; Flowerdew, 1999, 2000, 2005; Flowerdew & Li, 2009; Lillis & Curry, 2006), though as Li (2006b) has indicated, a good portion of this work focuses on established professionals rather than novice scholars. As Li claims, more research is needed to examine the processes by which *graduate students* learn the ins and outs of this critical academic activity.

Second, Paulo’s story offers an interesting contrast to the experiences of Salman and Girmit, both of whom maintained fairly close, one-on-one mentoring relationships with their advisors. While Paulo’s advisor, Rob, played a significant role in the early stages of Paulo’s academic enculturation, he has since left NLGU for a post at another university, and though Paulo receives feedback from Rob by e-mail, this feedback is often very limited. Paulo’s case offers an interesting challenge to those researching academic enculturation, many of whom draw from Lave and Wenger’s (1991) notions of apprenticeship to focus more specifically on the mentor-mentee relationship (Belcher, 1994; Blakeslee, 1997; Casanave & Li, 2008; Simpson & Matsuda, 2008). While I would argue that the notion of “apprenticeship” still applies in Paulo’s case, Paulo’s learning process is much more distributed, requiring him to synthesize bits and pieces of expertise spread across a system of people, publications, and past learning experiences. On one hand, Paulo’s case is extreme, in that not all graduate students share the experience of a long-distance relationship with their advisors; on the other hand, Paulo’s story is but a
slightly more extreme case of the sort of negotiation process *every* international graduate student experiences learning to write for publication.

In this chapter, I start with a brief discussion of the geopolitics of academic publishing, a critical backdrop for understanding Paulo’s experiences. I then narrate Paulo’s experiences revising portions of his master’s thesis for publication in *Remote Sensing Journal*, a well-cited specialist journal in his field. In the last part of the chapter, I use the ecological framework developed in chapter 1 to examine Paulo’s experience negotiating with journal reviewers and adapting knowledge from previous academic experiences for use in this academic activity. By doing so, I hope to demonstrate a more robust approach to studying the highly decentered nature of learning in US graduate programs.

**The Politics of Publishing as an International Graduate Student**

Academic publishing plays a critical role in graduate students’ professional development, particularly in the sciences. Recent research conducted in North American and overseas contexts has demonstrated that graduate students are under increasing pressure to publish in order to be competitive on the job market or to secure much needed research funding (Cho, 2004; Graves, 2010; Huang, 2010; Li, 2006a, 2006b; Rose & McClafferty, 2001). In fact, more and more doctoral programs in the US and abroad are requiring publication, or at least strongly recommending it. As Dong (1998) reports, and as I have found in my own research, concerns about the job market and the difficulty of publishing book-length manuscripts in the sciences have prompted some fields to abandon the traditional dissertation monograph for a compilation of articles to be

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63 The journal name has been changed to protect the participant’s identity.
published separately (preferably, before graduating). As participants in my study have contended, their work in the classroom has provided only a portion of the experience they need to navigate the complex system of academic publishing. Inevitably, much of the learning happens while they are in the thick of it.

Further, as numerous researchers have indicated, academic publishing is a highly political enterprise, thus raising the stakes considerably for NNES graduate students (Canagarajah, 2002a, 2002b; Swales, 1997, 2004; Tardy, 2004b; Wood, 2001). Often, the importance of a particular scientific finding, and the researcher's ability to procure necessary research funding, is determined by publication in well-cited "international" journals, the vast majority of which are published solely in English due to the political and economic pull of English-speaking countries (Belcher, 2007; Tardy, 2004b; Wood, 2001). In fact, in 2004, *Nature* published an analysis of the *Scientific Citation Index*, a database ranking academic journals and publications based on the number of citations internationally (King, 2004). This analysis, entitled "The Scientific Impact of Nations," compared countries' scientific output with their global economic standing. Not surprisingly, US institutions ranked first, producing 50% of the world's top-cited articles, and 63% of the top-cited articles in top-tier journals, a phenomenon partly attributable to the amount of federal money for scientific funding disbursed through agencies such as the National Science Foundation (NSF) and the National Institute of Health (NIH). For many, a strong connection exists between a nation's financial well-being in the global market and its scientific infrastructure, a reality which has prompted a recent flurry of research on doctoral education—and, more specifically, doctoral writing—in countries

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64 I should note that a number of other factors contribute to the dominance of US-based researchers, as well.
such as Canada and Australia (Aitchison & Lee, 2006; Graves, 2010; Kamler & Thomson, 2006).\

Internationally, the pressure to publish in well-cited international journals has prompted researchers from developing countries to seek outside publication in English-medium journals in order to compete for valuable academic resources, networks, and recognition (Flowerdew & Li, 2009; Salager-Meyer, 2008; Vasconcelos, 2007a, 2007b; Vasconcelos, Sorenson, & Leta, 2007). Locally, at many US institutions, the need for external research funding drives many graduate students and their advisors to seek publication as early and as often as possible. In the case of Paulo, the Brazilian student discussed in this chapter, the funding he receives from NASA is critical, as the IES program offers no internal forms of support—publication is his bread and butter. Moreover, at a more personal level, publication provides him flexibility later in his career to pursue job opportunities both in the US or in Brazil. Interestingly, Brazil has a very large body of Portuguese-language research, and while Paulo indicated wanting to publish an article in Portuguese at some point, he is aware that doing so would limit both the audience and the impact of his work. Because Paulo and Rob receive significant federal funding from NASA, Rob strongly encourages Paulo to target top-tier scientific journals so their work receives maximum exposure. The reality for Paulo is that even if he returns to Brazil after graduation, he will most likely need to continue publishing in English if he wants his work to be internationally recognized.

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66 There has been a push within Brazilian research circles to publish in English outside of Brazil. See, for example, Vasconcelos (2007b).
Data and Participant

This chapter focuses on Paulo’s revisions of parts of his master’s thesis for publication in Remote Sensing Journal (“RSJ”). Data for this chapter was drawn from three semi-structured interviews with Paulo, one of which was a text-based interview focused on his process writing and revising his RSJ article, interviews with his advisors, and drafts of his articles with feedback from advisors and blind peer reviewers from RSJ. Specifically, I collected the following documents:

- Two drafts of Paulo’s RSJ article, the first of which (V.1) is the copy Paulo submitted to RSJ, the second of which (V.2) is his revisions based on reviewer comments.
- Copies of all four blind peer reviewers’ comments to Paulo’s V.1 draft.
- Paulo’s 19-page response to reviewers’ comments.
- Excerpts of Paulo’s master’s thesis (in Portuguese).67
- Two drafts of a second article for publication Paulo worked on at the same time as his RSJ paper, with written feedback from two advisors/collaborators. This article, a letter to a top-tier environmental sciences journal (“TTES”), doubled as a chapter from Paulo’s dissertation.
- A letter-length article (1500 words) Paulo published previously—“Paulo (2005).” Additionally, several short follow-up interviews were conducted with Paulo to check on the status of his revisions and for fact-checking purposes.

Before conducting the text-based interview, I collected five recent RSJ articles68 and a copy of the author guidelines. Sample RSJ articles were analyzed for academic

67 Paulo walked me through relevant portions of his thesis during the third interview and in a short follow-up interview.
conventions, with particular attention given to the amount of space authors devoted to each of the major sections (i.e., abstract, methods, etc.). This document analysis served as a good background when questioning Paulo about reviewers’ feedback. (See chapter 2 for a description of data analysis methods).

Paulo, a Brazilian man in his early thirties and a native Portuguese speaker, researches causes of deforestation in the Brazilian Amazon. More specifically, Paulo’s research utilizes remote sensing technology—i.e., satellite images of the Amazon—to track deforestation, which he then verifies through extensive fieldwork, soil analysis, etc. (what is known as *ground truth data* in his field). Paulo is not new to his field, though he has conducted much of his academic research in Brazilian settings, and often in his native language. Paulo completed his Masters degree at a Brazilian university and had already collected much of his dissertation data before coming to the US for his doctoral work. Paulo met Rob while conducting research for his Master’s thesis. Rob, who held a dual appointment with NLGU and the USDA Forest Service, was coordinating a NASA-sponsored international research effort in the Amazon.

Rob expects Paulo to publish in top-tier academic journals. Paulo’s dissertation will consist of a compilation of previously published, or publishable, articles, one of which—the *TTES* article—he was writing with two of his dissertation advisors simultaneous with writing his *RSJ* article. Paulo has already published one article in an English-medium remote sensing journal with colleagues from his previous institution, and he has experience reviewing prospective articles for academic journals, yet he is still learning the conventions of academic publishing.

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68 *RSJ* articles were chosen from issues in the past three years and focused on remote sensing of forests and/or remote sensing methodology.
Paulo is very well connected in the remote sensing community and very confident in his academic abilities, yet he reports feeling fairly isolated at NLGU. Because Rob has since left NLGU for a different post, much of Paulo’s interaction with colleagues occurs via e-mail, and while he maintains good relationships with other forestry students in his lab, he often finds his work too different from theirs to solicit their feedback (i.e., many of them research temperate forests). Paulo also has the impression that American students are more “individualist” than the Brazilian students at his former university, which has been an adjustment for him. “I think it’s just the way that American students is, or researcher is,” he explained. “You just go to the office and stay there, and they try to figure out by themselves, instead to share, share the problems. In Brazil, you talk a lot with people around of you, and sometimes it runs better.” He noted feeling more free to question fellow graduate students in Brazil when he needed help.

At the time of this study, Paulo had not decided whether to return to Brazil upon graduation or to stay in the US, though due to the academic networks he retained in Brazil, he could pursue either option.

The Case

In the following narrative, we see that for Paulo, writing and revising the RSJ article—while in many ways a more independent process than is customary in scientific research—was still a highly decentered and distributed task, requiring him to develop a meta-awareness of the system in which he was participating. We also see the interrelationships between cultural, disciplinary, and personal factors on his learning process.
Writing the RSJ Article

Paulo’s RSJ article reports findings from a study of secondary forests in the Amazon—that is, forests that have regrown in deforested areas—with special attention to the amount of carbon the regenerated forest feeds into the ecosystem. In Paulo’s words, his composition of this article was “a very special process.” Unlike articles based on his dissertation research, which were composed in English from the start, the RSJ article is a translation of research originally included in Paulo’s master’s thesis, written in Portuguese. The process of translating from Portuguese was laborious, according to Paulo. “Sometimes I cannot express some idea in English the way that I wrote in my thesis, you know,” Paulo admitted. “It’s not because I cannot, but because I don’t have a complete domain of the language to translate in a clear way.” Paulo could have submitted this article to a Portuguese-language journal inside Brazil, but he feared that doing so would keep his study from receiving the international attention he desired. “It’s hard to fight against the rule,” Paulo admitted:

P: I have a couple papers that I wrote in Portuguese that could be easily translated for English and you have much more, Index of... there’s an Index for that, I forgot.
I: The Scientific Index...
P: The Scientific index, yea (claps hand)
I: And most of the journals in there are...
P: ...in English. And my paper’s in Portuguese, it’s just for Brazilians. So it’s hard to fight against that. I’m kind of divided sometimes.

Further complicating the process, Paulo wrote his master’s thesis in traditional monograph format, meaning that all the methods were collected into one chapter, and all
the findings in another. Writing the *RSJ* article involved excerpting parts of the methods and findings relevant to this smaller study. Thus, Paulo was often unsure whether he was providing enough context for the excerpts used.

Moreover, unlike other articles he has written, which were composed in smaller chunks and e-mailed to advisors and co-writers for feedback along the way, Paulo wrote the entire *RSJ* draft himself in a short, intense two-week period and sent it to his co-authors only at the end of the process for their final feedback. The co-authors, consisting of Paulo’s Brazilian colleagues who helped with data collection, helped Paulo “*a little bit,*” though he claimed the paper was still “100%” his. Paulo e-mailed the draft to Rob, who declined to comment on it, as he had not been involved in collecting or writing up this data.69

Paulo’s last move was to take a final draft to NLGU’s writing center. The peer tutor helped Paulo with some final edits, though Paulo said the tutor felt limited in the advice she could give due to her unfamiliarity with science writing.

**Reviewers’ Comments**

The decision of all four *RSJ* reviewers was unanimous: Paulo’s paper had potential but needed significant revisions before being accepted. Paulo was disappointed but not entirely surprised, as *RSJ* is a competitive journal. He was encouraged, however, by the extent of the reviewers’ feedback, which Paulo felt they would not have provided if they did not see a chance for the article.

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69 I was not able to get Rob’s rationale for not commenting on this draft. Paulo believed Rob declined because he did not feel right having his name on a study to which he didn’t contribute. Rob commented copiously on the *TTES* article, however.
Comparing Paulo’s V.1 draft to five recently published articles in RSJ demonstrates some key ways in which his article departs from others RSJ has accepted (see Table 5.1). While RSJ’s author guidelines do not provide specific language on suggested article length, Paulo’s V.1—at over 9000 words—is clearly longer than most other articles in the journal, not to mention it devotes much more space to describing methodology than to explaining the study’s implications in the results and discussion section. Paulo’s is also the only article I found in recent issues that separated the “study area” from the “methods.”

More specifically, the reviewers expressed the following concerns with Paulo’s article:

- **Abstract.** Reviewers thought Paulo’s abstract was too long. While the author guidelines are vague on abstract length—they say only that an abstract should be “concise”—Paulo’s is twice the size of the average abstract.

- **Study Area and Methods.** Reviewers found Paulo’s methods section too detailed; Reviewer 1 even reminded Paulo that he was not writing a “remote sensing manual.”

- Reviewers believed that much of the material in Paulo’s “study area” section—his description of the region in which his study was conducted—could be referenced with a quick citation of previous work or deleted altogether.

- **Implications.** Reviewers felt that Paulo did not adequately explain his study’s most significant contributions. Reviewer 3, Paulo’s harshest critic, stated that “the research is not particularly new or innovative and does not provide much additional insight into regeneration dynamics.”
Table 5.1
*Word count comparison between Paulo’s drafts and sample articles from Remote Sensing Journal (RSJ)*

<table>
<thead>
<tr>
<th>Document</th>
<th>Abstract</th>
<th>Introduction</th>
<th>Setting</th>
<th>Methods</th>
<th>Results</th>
<th>Conclusion</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paulo V. 1</td>
<td>519</td>
<td>1495</td>
<td>993</td>
<td>3940</td>
<td>1963</td>
<td>492</td>
<td>9402</td>
</tr>
<tr>
<td>Paulo V. 2</td>
<td>236</td>
<td>814</td>
<td>374</td>
<td>3396</td>
<td>1320</td>
<td>495</td>
<td>6635</td>
</tr>
<tr>
<td>RSJ 1</td>
<td>385</td>
<td>1327</td>
<td>--</td>
<td>3288</td>
<td>1970</td>
<td>566</td>
<td>7536</td>
</tr>
<tr>
<td>RSJ 2</td>
<td>273</td>
<td>801</td>
<td>--</td>
<td>1707</td>
<td>2844</td>
<td>614</td>
<td>6239</td>
</tr>
<tr>
<td>RSJ 3</td>
<td>235</td>
<td>962</td>
<td>--</td>
<td>3173</td>
<td>2524</td>
<td>--</td>
<td>6894</td>
</tr>
<tr>
<td>RSJ 4</td>
<td>266</td>
<td>1352</td>
<td>--</td>
<td>2976</td>
<td>2759</td>
<td>1439</td>
<td>8792</td>
</tr>
<tr>
<td>RSJ 5</td>
<td>308</td>
<td>956</td>
<td>--</td>
<td>3018</td>
<td>3129</td>
<td>197</td>
<td>7608</td>
</tr>
<tr>
<td>Mean (RSJ)</td>
<td>293.4</td>
<td>1079.6</td>
<td>--</td>
<td>2832.4</td>
<td>2645.2</td>
<td>704</td>
<td>7413.8</td>
</tr>
</tbody>
</table>

*a* Paulo was the only person in this sample to separate the setting (or “study area”) from the methods

*b* Most articles combined “results” and “discussion”

*c* Includes a “study area” section

*d* Separated results (1588 words) and discussion (1544 words) sections.

- **Language.** Reviewers believed Paulo’s long and convoluted sentences made his introductory sections difficult to navigate. All four reviewers identified Paulo as a non-native English speaker. Reviewer 1 flagged Paulo’s use of “fieldwork” in the plural—“field works”—as an example of a non-native speaker’s error and suggested he ask a native speaker to proofread his work. Reviewer 3 provided Paulo with four single-spaced pages of line-by-line edits. Reviewer 4 edited Paulo’s document by hand and included the edited version with his comments.

**Negotiating with Reviewers, or “Playing the Game.”**

In many ways, Paulo’s process negotiating with reviewers demonstrates the complex interaction of a learner with his environment, requiring Paulo to draw upon a rich network of previous academic experiences—his individual learning trajectory—to
evaluate and synthesize feedback received from a number of sources, most prominently from RSJ reviewers.

During our interview, Paulo fluctuated in his reactions to reviewers' feedback, at times expressing frustration, at times conceding they were “100%” correct and that his decision to describe his methods in such detail was “a typical mistake for a master’s student.” Nonetheless, Paulo’s manner of negotiating revisions with the reviewers demonstrates his knowledge of the disciplinary culture and a developing rhetorical savvy, formed in part from previous experiences publishing and reviewing manuscripts for journals. This negotiation, played out in a 19-page response letter to the editor, proved to be a valuable learning experience for Paulo.

The letter Paulo received from RSJ's editor-in-chief advised him that publication of his article “depends on revision/rebuttal of the criticisms made.” Paulo likened this process to a “game” requiring strategic responses to reviewers’ suggestions:

You have to be smart in two ways to do the question, but to answer, too. And the easiest way to have a paper accepted is to say on this paper, oh you’re right! Or, you’re not too much right, but never to be so much strong, because you’re going to be upset the reviewer. [...] Most of the time he try to help you. If the review knows what he’s doing, basically they want to help you with the paper. And he spends a lot of time reading other papers. So he’s not your enemy.

Such strategizing, as Paulo explained later in the interview, involved knowing when he should stand up for his own opinion, as complete acquiescence to reviewers’ remarks could compromise his own academic integrity. However, from his own experiences reviewing articles, he knew that ignoring reviewer comments could be equally problematic. He recalled a time when he had refused a paper for publication:

I refuse one paper once, because I did a lot comments, and that guy just wrote for me, improved, improved, improved, improved, right, right, improved, improved [pounds on table for each point]. I’m busy, you know, but he took me on a day
that I was not busy. And I print his paper, went to the original, put it on two screens, see how it is changed or not, then I saw that he didn’t change so much, then I refuse it.

Paulo remembered his anger at this incident and vowed he would not make the same mistake with his own article.

Paulo’s greatest challenge was responding to reviewer 3, who questioned the significance of his research. While Paulo admitted that he did not develop his implications as well as he could have, he still had a visceral reaction to Reviewer 3’s comments, as evident in a parenthetical he inserted in his version of the reviewers’ feedback: “NAO ENTENDI!!!” (I didn’t understand!). Further, Paulo had an idea who the reviewer might be and suspected his comments were rooted in a tension within the research community between remote sensing purists and field specialists such as himself. “This is a typical remote sensing person that don’t have [field] data and they believe in everything remote sensing,” Paulo explained. “They just want to use the data that remote sensing, remote sensing, and then when someone comes with data from the field, they tell you didn’t use so much, it’s not so important, this few data. So there is this kind of two view in remote sense science.”

Paulo’s first reaction was to isolate Reviewer 3’s opinion. “We strongly disagree that this work is not placed in the context of regenerating forest situation,” Paulo wrote. “As observed for the reviewers 1, 2 and also 4, the main contribution of this article is that we presented significant results of the sink process of aboveground biomass in a regenerating forest of the Amazon.” In our interview, Paulo had second thoughts about this strategy and considered removing this section. Nonetheless, he chose to keep a fairly
concise statement of purpose that communicated his study’s goals more clearly than anything in the original article:

We agree that there are several studies have been exploring the topic of secondary forests in the Amazon (e.g. [references]). Thus, we agree with the reviewer that this study “apparently” does not provide additional insight into tropical ecology of succession. However, most of the studies that have been published in the tropics using remote sensing technology, specifically in the Brazilian Amazon failed in to understand the relation between secondary forest and carbon dynamics in two ways: (1) studies that used reasonable historical satellite images and image processing methods, but insufficient ground information to test the more interesting insight of this subject (regenerating as a carbon sink in the tropics); or (2) researches that used significant ground information of forest inventory, but did not present enough knowledge of remote sensing approaches (atmospheric correction, radiometric rectification, multitemporal classification, validation and etc.).

That is, Paulo argued that his paper demonstrates methods of integrating satellite and field data, something he felt was lacking in current research, a move requiring him to challenge Reviewer 3’s disciplinary biases.

Despite Paulo’s reaction to Reviewer 3, Paulo inferred from the respondent’s detailed comments that he could ultimately be swayed to accept the article. Thus, Paulo tempered his rebuttal by conceding Reviewer 3’s points elsewhere and writing notes such as “Thanks for this important comments.” Further, Paulo accepted all of Reviewer 3’s stylistic and grammatical corrections verbatim, which could be interpreted as an attempt to placate this reviewer, or could simply be a case of a non-native English speaker deferring to a native-speaker. In some cases, Paulo’s revisions preserved typos in Reviewer 3’s suggestions. For example, Reviewer 3 suggested Paulo revise a sentence to read, “...Amazon, estimates rates of average annual deforestation were _2.3 x 106 ha (from 2001 to 2005)” [“estimated”].
Paulo also needed to consider reviewers’ suggestions to reduce the methods section and spend more time explaining his study’s implications. This criticism was not new to Paulo, as it had likewise been his advisor’s chief criticism of his version of the TTES article. Paulo agreed with these suggestions in theory, though he struggled with this advice conceptually for a number of interrelated reasons.

Paulo expressed concern that not providing these methodological details would make the study almost impossible to replicate. Reviewer 1 suggested Paulo cite one of his earlier publications—Paulo (2005)—instead of re-explaining that particular method in his RSJ article. \(^{70}\) Paulo’s concern, however, was that Paulo (2005) was published as a research letter, and due to space considerations he had had to cut methodological detail out of that publication, as well. For Paulo, as for many of my participants, this practice of naming a method and citing previous studies seemed to result in an endless trail of citations without anyone actually explaining how the method is performed. In fact, research in the rhetoric of science writing has indicated that research reports in many fields have cut down on methodological detail, as methodology has become increasingly standardized in scientific disciplines, and as the competition for research funding has driven scientists increasingly toward “new” studies instead of replications of previous ones (Atkinson, 1999; Swales, 2004). Paulo’s own advisor echoed this finding when discussing the TTES article. Thus, Paulo wrestled with questions about the fundamental purpose of methods sections in his field, a convention which can often be frustratingly implicit.

\(^{70}\) Both Paulo and I assume from this suggestion that Reviewer 1 had guessed Paulo’s identity.
While Paulo’s difficulty in writing the methods section may have stemmed from a lack of disciplinary knowledge, a number of personal and cultural factors contributed, as well. For example, Paulo was hesitant to delete material from his study area section, which was nearly 1000 words long in Paulo V.1, and to collapse it into the methods section. Paulo felt compelled to include this information, not only because he had significant field data, but because he believed his first-hand field data set him apart from other remote sensing researchers who research the Amazon. “Most of the people don’t write much about the area because they don’t go to the field, especially if it is in the Amazon,” Paulo explained. “They think, oh it’s remote sensing, I don’t need to go there. Just take the image, process it. […] I really know the area. And for me it is important to describe that. And it is important, actually. People don’t do it because they never went there, and they don’t have data from there.” Thus, Paulo expressed considerable ownership of this material, and perhaps even a little resentment of researchers publishing about his own country without even having visited it.

Moreover, Paulo had grown accustomed to providing extensive methodological detail from his Masters work in Brazil. Paulo perceived this to be a key difference between the Brazilian research community and the American research community. “I think Americans and American scientists,” he explained, “they’re more looking for insights than Brazilians. […] What’s new? What’s really new? And Brazilians, we are really good technically; we are just worried about all the details technically. It’s different in Brazil.” Paulo conjectured that he might have had an easier time publishing this paper in Brazil. He also conceded, however, that students at his previous institution were still required to write long-form theses and were not as pressured to publish. Writing in that
context, Paulo had been encouraged to provide his committee with extensive background on his methods and theoretical framework—academic knowledge-telling, in other words. It is quite possible that the demands of his former educational context shaped his perspective of scientific writing conventions considerably.

Paulo’s revisions are both interesting and slightly problematic. On the one hand, his revision process was a delicate balancing act, trying to incorporate reviewers’ feedback while also preserving parts of the text he believed to be important. On the other hand, Paulo’s revision still devotes more space to methods than to results and discussion. The discussion section, in fact, shrank by more than 600 words, due mostly to a large section on “Cloud Removal” which Reviewer 4 said should be moved to the methods. Granted, Paulo was continuing to work on calculations which would eventually raise the word count in the results and discussion section, and many of the results were presented as graphics and tables. Nonetheless, his revision, while significantly more concise, retains many characteristics of Paulo V.1.

While Rob did not comment on Paulo’s RSJ article, he had recently provided feedback on the TTES article they were working on together, and Paulo did consider the similarity between Rob’s TTES comments and RSJ reviewers’ feedback. In Rob’s TTES revisions, he replaced large sections of text in the methods section with citations, and he completely rewrote the discussion section, explaining more specifically how the study departed from current studies and emphasizing clearly in the final sentence the article’s major contribution (see Figure 5.1). As we can see from this example, both Paulo and his advisor acknowledged the overlap between their study and Reference A, though Paulo’s
advisor states this overlap more concisely and uses less hedging when describing their contributions.

While acknowledging the similarity between Rob's and the reviewers' suggestions, Paulo chose a different strategy for revising his RSJ article. The TTES article, he argued, was intended as a research letter in one of the top environmental

Figure 5.1
Side-by-side comparison of Paulo's Discussion section in TTES article and his advisor's suggested revisions.

<table>
<thead>
<tr>
<th>Paulo's version</th>
<th>Rob's revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our results, corroborates with several field plot studies in the Amazon basin.</td>
<td>One may hypothesize the smaller scale wind disturbances down to the level of</td>
</tr>
<tr>
<td>According to [Reference A] trees with large fruits and high wood densities a</td>
<td>individual tree-fall gaps follow a similar spatial pattern to the one we</td>
</tr>
<tr>
<td>that are associated with shade-tolerance are prevalent in the eastern portion</td>
<td>observed for large disturbances. In this way, our results support the</td>
</tr>
<tr>
<td>of the Amazon region and the Guyanas while the western Amazon region tends</td>
<td>contention of [Reference A] that forest dynamics and trees species</td>
</tr>
<tr>
<td>to contain trees with smaller fruits and less dense woods are characteristics</td>
<td>composition are linked across the Amazon. [...] Nonetheless, our study points</td>
</tr>
<tr>
<td>associated with trees that exploit light in large gaps. [...] The occurrence</td>
<td>to the possible importance of convective storm activity as a control over the</td>
</tr>
<tr>
<td>of new disturbances in areas of concentration of old disturbances, may suggest</td>
<td>long term vegetation composition in the Amazon region showing a new linkage</td>
</tr>
<tr>
<td>a coupled atmosphere-biosphere interaction, where the physical behavior of</td>
<td>between climate and biodiversity. (Emphasis added).</td>
</tr>
<tr>
<td>the squall line and rainfall [Reference B] reintense the occurrence of</td>
<td></td>
</tr>
<tr>
<td>downbursts and consequently the formation of blowdowns in specific areas of</td>
<td></td>
</tr>
<tr>
<td>the Amazon. b</td>
<td></td>
</tr>
</tbody>
</table>

a Paulo identifies overlap with reference A.
b Paulo's hedged description ("may suggest") of the study's major finding.
c Rob acknowledging overlap with reference A.
d Rob stating the same finding in the final sentence with less equivocation.
studies journals. Not only were he and his advisor more constrained for space—research letters usually average 2000 words—but they were also writing for a more general audience of environmental scientists, many of whom were not remote sensing experts. *RSJ* readers, Paulo contended, were more interested in—and more critical of—remote sensing methodology, so he saw the *RSJ* article as an opportunity to elaborate on methodology he couldn’t include in either Paulo (2005) or the *TTES* article. Nonetheless, he agreed with *RSJ* reviewers about being more concise in his methods section and more explicit about his study’s contributions. The difference, as he explained in his response letter to *RSJ*, was that he decided to better emphasize his study’s significance in his paper’s *introduction*.

Paulo used reviewers’ suggested cuts to prune his introduction and more clearly state the differences between his study and others. In Figure 5.2, for example, Paulo simply divides a long sentence and adds a transition word (“However”), yet even this simple revision emboldened one of his more important academic moves (i.e., explaining the limitations of current studies). We see a more substantial revision in Figure 5.3. In Paulo V.1, we see Paulo clearly state “the main objectives of this paper,” yet these stated objectives are precisely what Reviewer 3 believed to be a rehashing of other studies. In Paulo V.2, we see Paulo move more quickly to a description of current studies’ limitations, which, as Paulo explained in his response to viewers, is his study’s key contribution. Paulo had included this description of limitations in V.1, though it was separated from his “research objectives” by a page of literature review, which Paulo removed at the reviewers’ request.
Figure 5.2
Side-by-side comparison of excerpts from RSJ article introduction – Identifying previous studies’ limitations.

<table>
<thead>
<tr>
<th>Paulo’s V.1</th>
<th>Paulo V.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Now, considering that the calculation of CO₂ emission in tropical ecosystems is normally calculated by a simple division of a possible stock of above-ground biomass (AGB) by the area deforested [References A, B, C] and also considering that AGB maps generally come from coarse forest inventory plots [References B, D], we may suppose that there is high uncertainty in these estimates.(^a) The uncertainty of such estimates can be around 50% according to the Intergovernmental Panel on Climate Change (IPCC) (Reference E).</td>
<td>Estimation of CO₂ emission in tropical ecosystems is normally calculated by a simple division of a possible stock of aboveground biomass (AGB) by the area deforested (References A, B, C). However, AGB maps for the Amazon have been derived from coarse forest inventory plots [References B, D] and are associated with high degree of uncertainty(^b) which has been estimated at around 50% (Intergovernmental Panel on Climate Change, IPCC) (Reference E). (emphasis added)</td>
</tr>
</tbody>
</table>

\(^a\) Statement of previous studies’ limitations comes at the end of a long sentence and is hedged.  
\(^b\) The same statement as its own sentence, with less equivocation.

In addition to reducing—though not eliminating or moving—his study area section, Paulo removed large portions of text in his methods section. In particular, Paulo targeted sections of “knowledge-telling” in his text—places where he was explaining information RSJ readers would likely know about remote sensing. In Figure 5.4, we see that Paulo removed a large section of text—two paragraphs in the original manuscript—in which he was simply describing remote sensing protocol (e.g., “In remote sensing there are basically two ways to convert...”). Furthermore, while Paulo made few revisions to the results and discussion section, he did entertain a few of the reviewers’ counterarguments. In one instance, Paulo copied Reviewer 3’s objection into his manuscript verbatim and entertained it as a counterargument.
At the time this article was written, Paulo was still in the process of adjusting his calculations and resubmitting his draft. He had been distracted from the process, as he and his advisors received word that their TTES article had not been accepted and that they would need also need to revise that article.

Figure 5.3
Side-by-side comparison of excerpts from RSJ article introduction – Restatement of research objectives.

<table>
<thead>
<tr>
<th>Paulo’s V.1</th>
<th>Paulo V.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Despite of the recognized importance of the secondary forests in the Amazon, the use of remote sensing technologies for determination of age of regrowth areas have been limited because of the spectral similarity of the vegetal communities with aging [References A-H]. The main objectives of this paper are (i) to demonstrate the use of remote sensing data to stratify the age of secondary forests in the tropics using an explicit semi-automatic metrics, (ii) to demonstrate the relation between age regrowth and carbon accumulation of secondary forest in the Amazon. ..</td>
<td>Despite the recognized importance of the secondary succession (SS) in the Amazon, the use of remote sensing technologies for determination of age of regrowth areas have been limited because of the spectral similarity of the forest communities with age [References A-H] due to: (1) the structural horizontal heterogeneity of the secondary forest canopy can generate mixed pixels; (2) the diversity of tree species, plant geometry, biomass and vertical structure of regrowth increase the complexity of the vegetation canopy and reduces spectral information and therefore, discrimination by remote sensing data (Lu et al., 2003a); and (3) saturation of reflectance from dense canopies for visible and near infrared wavelengths...</td>
</tr>
</tbody>
</table>

a Paulo’s original research objectives, both of which reviewer 3 argued references A-H have shown.
b Paulo replaces these objectives with methodological limitations of references A-H, a passage previously placed much later in the introduction.
Figure 5.4  
Side-by-side comparison of excerpts from RSJ article introduction – Methods deletions.

<table>
<thead>
<tr>
<th>Paulo’s V.1</th>
<th>Paulo V.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent GPS points collected at BR-163 were also used to check the</td>
<td>Independent GPS points collected along the BR-163 were also used to check</td>
</tr>
<tr>
<td>quality of warping.</td>
<td>the quality of geometric correction.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>**In remote sensing there are basically two ways to convert the digital</td>
<td></td>
</tr>
<tr>
<td>numbers (DN) of satellite images for physical values of reflectance (ρ):</td>
<td></td>
</tr>
<tr>
<td>(1) transformation of DN for apparent reflectance (ρa), without taking in</td>
<td></td>
</tr>
<tr>
<td>consideration of the atmospheric effects (Markham and Barker, 1987); or</td>
<td></td>
</tr>
<tr>
<td>(2) conversion of DN for surface reflectance (ρs), using the atmospheric</td>
<td></td>
</tr>
<tr>
<td>correction approach. […]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>We used two approaches for the atmosphere correction of our recent</td>
<td>We used two approaches for the atmosphere correction of our recent</td>
</tr>
<tr>
<td>Landsat image…</td>
<td>Landsat image…</td>
</tr>
</tbody>
</table>

* An example of “knowledge-telling” deleted at reviewers’ request.

**Learning the System: An Ecological View of Paulo’s Learning Process**

In Figure 5.5, I have constructed a tentative rich picture of Paulo’s process negotiating the task in this study. Significant to note initially is the large box labeled “Geopolitical Context” that frames the entire activity. The larger cultural and political implications of academic publishing in English-medium journals inevitably shape every step of this process—Paulo’s negotiation strategies, the disciplinary and linguistic conventions he must learn, the feedback from reviewers and advisors, etc.
Figure 5.5: A rich picture of Paulo’s negotiation processes writing the RSJ article.

Toward the left of the diagram is a box labeled “Paulo,” representing Paulo’s individual learning trajectory up to the point of writing the RSJ article. At this point, Paulo’s identity as a researcher is informed by his previous academic experiences, his language background, and his previous interactions with colleagues and advisors. I should note three important items. First, while I have included these items as a bulleted list, I am not suggesting these are separate items contained somewhere in Paulo’s head; rather, these experiences as a whole constitute Paulo’s identity as a researcher, forming a sub-system of their own. Second, while I have indicated that this box represents Paulo’s “individual” learning trajectory, most of these items are not “individual” per se, but are
past social encounters—interpersonal, disciplinary, etc—Paulo has appropriated. Thus, as numerous sociohistoric studies of learning have indicated, we see the highly-imbricated nature of the social and the individual in learning (Prior, 1998; Rogoff, 1995, 2003).

Third, while it is still fair to call Paulo a “novice” researcher, he is not inexperienced. He enters this task with publishing and reviewing experience. Nonetheless, he still struggles with academic writing conventions in English. Learning academic literacy practices is, indeed, a long, complicated negotiation process.

Toward the center of the diagram is the task of writing the RSJ article. I have also indicated a number of constraints determining the effectiveness and efficiency of Paulo’s performance (e.g., academic English proficiency, genre knowledge, disciplinary knowledge, etc), points at which we see his individual learning trajectory interacting with the activity. As Rogoff has argued (1995, 2003), the transfer of learning from one task to another is never a simple matter of application. Rather, the current task poses its own problems, requiring Paulo to evaluate, adapt, and even reject previous advice. Also toward the center of the diagram, connected to the main activity, are people who inform Paulo’s participation in this activity. The RSJ reviewers, in this case, act simultaneously as Paulo’s most significant source of feedback and his greatest obstacle to publishing. Publication requires Paulo to negotiate his own objectives with these members of the remote sensing community and to contend with any disciplinary biases affecting their judgment. Also significant are the expectations placed on Paulo by his graduate program and his advisor—and implicitly (hence the dotted line) from other colleagues and students who might also be trying to publish—all of which nudge Paulo to participate more fully as a member of this academic community. Not to mention, Paulo’s
participation in this task was very likely informed by how he might have viewed other students writing for publication.

The output on the right of the diagram is the completed article—or, in Paulo’s case, the experience of writing the article—which benefits the larger remote sensing community, but which also, more directly, benefits the program and Paulo, himself. Not only would publication in a peer-reviewed journal make Paulo more marketable when pursuing grants and academic posts (thus bringing more prestige to the program), but as we see from the arrow at the bottom of the diagram, the experience—regardless of publication—feeds back into Paulo’s individual learning trajectory. That is, the experience inevitably changes Paulo in ways that will affect his performance (positively or negatively) the next time he engages similar tasks. Thus, we have what systems theorists call a positive feedback loop, in that Paulo’s successive experiences continue to change his identity as a researcher, thus changing his performance in subsequent tasks.

Granted, representing this activity with boxes and arrows has the unfortunate drawback of making this process seem static. On the contrary, the relationship between a learner and his environment is highly dynamic, and each time Paulo enters into this activity, the model will need to change to account for changing conditions. For example, in most cases, Paulo would receive more feedback from his advisors and other contributors, which might add an extra layer of negotiation, as Paulo might need to reconcile conflicting demands of other researchers. Likewise, this model’s overall configuration is highly dependent on the individual student. Since Paulo has a looser, long-distance relationship with his advisor, he is more dependent on outside sources of feedback on his work, a scenario which has both positive and negative implications on
his scholarly identity. As we saw in chapter 4, this configuration changes in cases where students have a tighter mentoring relationship and differing ways of balancing feedback from advisors with feedback from others in the academic community. Neither configuration is inherently better than the other; both have significant benefits and drawbacks. On the one hand, Girmit would probably not have to negotiate basic academic conventions with reviewers as much as Paulo did, since John would most likely weed some of this out before Girmit submitted the draft. On the other hand, because Paulo has to synthesize feedback from such a distributed network of sources, he is almost forced to strike out on his own and make his own “original” arguments. Girmit, does not receive as much feedback from sources outside his advisor, and so it is sometimes harder for him to carve out his own space apart from John.

The benefit of examining Paulo’s negotiation process from a systems view is that it foregrounds just how many factors—cultural, disciplinary, personal—affect Paulo’s performance at any stage of the task. Paulo’s difficulty writing the methods section is a good example of this. As many faculty in the NLGU environmental studies program have expressed, writing up methods can be difficult for any graduate student—native or non-native English speaking—as it necessitates knowledge of what information is “necessary” to a community of practice. While this is certainly true with Paulo, a number of additional layers complicate this issue further. As a non-native English speaker, Paulo is still developing a repertoire of appropriate ways to compress language in scientific writing, a necessary skill when writing concise methods sections. Much of the feedback he has received from advisors and reviewers comes in the form of direct correction and rewriting, with little explanation of why changes were made. Thus, appropriating these
grammatical forms requires Paulo to identify patterns in others’ corrections and to experiment with these forms in successive drafts. Further, Paulo admitted that translating this text from Portuguese created additional problems, as he tended to preserve sentence structures from the original text.

More significantly, however, Paulo encountered dissonance between his own understanding of a method section’s purpose—based partly on his previous experiences at a Brazilian university—and the expectations of his advisor and reviewers. Performing this task required him to resolve this dissonance in some way. His first inclination was to accept the demands in his current educational context as simply different from expectations in Brazilian research circles—i.e., his contention that Brazilians are more interested in methodological detail. However, Paulo was starting to question whether these differences were, in fact, cultural, or whether they stemmed more from differing expectations of writing in graduate school—i.e., a difference between writing a long form thesis and writing a compilation of publishable articles. Paulo had not fully resolved this dissonance during this study, though it is probable he will continue to confront it in future articles (or perhaps even in future revisions to this article). His answer to this problem has significant implications not only for how he approaches such tasks in the future, but how he approaches academic writing should he eventually return to Brazil.

Perhaps what makes this case most intriguing is that Paulo is entering into this task with considerable experience, but he still encounters significant problems with disciplinary conventions. At one point, he admitted to making “a typical master’s student mistake” by over-explaining his methods, but Paulo is far from a typical master’s student. He has a fairly well-developed identity as a researcher and considerable experience with
academic publishing. Not to mention, he has served as a peer reviewer, himself, and his advisor had given him this same advice on other occasions. The breakdown came in applying experiences from his individual learning trajectory to the current activity, a point to which I will return in the final chapter.

**Conclusion**

As argued throughout this study, ecological approaches to advanced academic literacy provide a more complex view on the interrelationship between a learner and her environment, and they function as a useful tool for synthesizing and applying findings from existing studies of academic writing and publishing, academic identity construction, and the experiences of multilingual graduate students in US institutions. Indeed, the systems view provides us with a rich understanding of how students negotiate the system of graduate education, and a better appreciation for the range of interdependent factors which could encourage or impede their learning.

In the next chapter, I will take this ecological approach to advanced academic literacy one step further and consider how advanced writing support does—or could—fit into these students’ busy lives and into existing support networks, and how we could better coach students to take advantage of existing networks and become more self-aware, sustainable learners. While researchers such as Tardy (2009) have demonstrated the effectiveness of advanced writing courses for graduate students in developing academic genre knowledge, students like Paulo who was experiencing some level of isolation within their programs might also benefit from other forms of writing support in later stages of their academic careers (e.g., writing center support, peer writing groups,
proposal writing workshops, etc). A systems view of advanced academic literacy could facilitate the exploration of alternative forms of writing support, and perhaps encourage partnerships with other university programs and services.
CHAPTER 6

LEVERAGE POINTS IN GRADUATE EDUCATION: EQUIPPING THE MULTILINGUAL LEARNER

The ‘compartmentalization of knowledge’ creates a false sense of confidence. [...] The boundaries that make the subdivisions are fundamentally arbitrary—as any manager finds out who attempts to treat an important problem as if it is purely “an economic problem,” or “an accounting problem,” or “a personnel problem.” Life comes to us whole. It is only the analytic lens we impose that makes it seem as if problems can be isolated and solved.

— Peter Senge, The Fifth Discipline

...global changes can be initiated only by local means, in our decentralized academic system; at the same time, however, local changes, if they can be carried through gradually and cumulatively, can have profound consequences across the entire system.

— David Damrosch, We Scholars: Changing the Culture of the University

The past three chapters have been mostly descriptive. My goal has been to paint a complex portrait of how multilingual graduate students develop identities as professionals in their fields; how they evolve as students in response to feedback from their environment and from their mentors, peers, and colleagues; and how they appropriate, adapt, and use the conventions and language of their respective fields. In ways, this final chapter is the hardest working of them all, as it is tasked with bringing these disparate chapters together and discussing what this ecological model of learning might tell us
about multilingual graduate students’ experiences in US institutions, and how it could inform writing program design and support mechanisms for international students.

Perhaps the best way to introduce this chapter is to state first what it will not accomplish. It will not provide an extensive list of practical tips for working with international graduate students, though EAP instructors and writing program administrators may find a few nuggets of practical information in the ensuing pages. This chapter will also not provide definitive answers to pedagogical problems experienced by university programs with rising populations of international graduate students. As I will explain later, solutions to such pedagogical problems must be situated in particular institutional contexts, must account for differing configurations of existing university resources, and must cater to the student population’s specific and diverse needs. Ill-fitting, top-down attempts to restructure university systems often result in more problems than if no actions were taken in the first place.

This chapter does pose approaches to thinking about literacy learning in advanced academic settings and to thinking through some of the more obstinate obstacles to internationalization in American higher education, caused in part by highly compartmentalized university systems. In this chapter, I start by fleshing out some of these obstacles and discussing their implications on international graduate student writing support. I then discuss the notion of leverage in systems thinking—i.e., small, well-placed, strategic changes made within a system—and the role of leverage points in encouraging change in dynamic, self-organizing systems, both at the level of the individual student and at the level of university programs. Lastly, I apply this concept to the cases in this study, exploring ways to equip multilingual graduate students to be
sustainable learners and to design more holistic university support structures that better account for the complex nature of advanced academic literacy learning.

**Systemic Obstacles to Change in Graduate Education and International Student Support, or Playing the ‘Beer Game’**

In *The Fifth Discipline*, a classic work in systems dynamics and organizational learning, Peter Senge (1990) writes of the “beer game,” a simulation game developed by MIT’s Sloan School of Management and used to demonstrate critical aspects of decision-making within complex, distributed systems. In this game, participants are arranged into three groups: “The Retailer,” a small store carrying the fictitious Lover’s Beer; “The Brewery,” the company producing Lover’s Beer; and “The Wholesaler,” the middleman ordering beer from The Brewery and distributing it to The Retailer. The game is divided into weekly segments, and each week each entity must assess the demand for Lover’s Beer and buy or produce enough beer to meet it.

Very early in the game, Lover’s Beer is featured in a popular music video, and the public demand doubles. The increased public demand generally causes The Retailer to double its order from The Wholesaler, which subsequently doubles its order from The Brewery. Very quickly, the supply dwindles, orders are backlogged, and The Retailer and The Wholesaler have to continue doubling their orders to meet both the backlogged orders from customers and the continuing demand for the product. The Brewery increases production to accommodate the growing demand from The Wholesaler. Eventually, however, regardless of how much or how little business experience players have, the game usually ends the same way: each group is left sitting on far more beer than they are
able to unload. Not to mention, each group inevitably blames one of the others for the situation. The Brewery blames The Wholesaler for stopping its orders, The Wholesaler blames The Retailer for the same thing, and The Retailer blames the fickle customers who stormed its doors demanding Lover’s Beer and then—seemingly—stopped. (Most players are surprised at the end of the game to find that after doubling in week 2, the customer demand remains constant for the rest of the game).

Though quirky, the beer game reveals several valuable principles about decision-making in a complex system that are relevant to this study of international graduate students. First, people tend to make decisions based on how they experience events locally. By design, the beer game traps players into making independent decisions that seem wise based on the circumstances, but which don’t consider the impact on other parts of the system. Second, while players are quick to pin blame on other people’s decisions within the system, the resulting problem actually can’t be pinned on any one person or decision; rather, the problem resides in the structure of the system, itself. Third, the best solution—the high-leverage solution—is often counterintuitive. The instinctual response to doubled demand is to double the product order, though Senge reports players who don’t change their orders at all generally fare better than those who continually double their orders. (The ideal solution is not to order more product when there is a delay from the supplier, but to wait until the original order is filled before ordering more).

Recently, many researchers in writing studies, education, and EAP have recognized the need for more writing support for graduate students in general (Aitchison & Lee, 2006; Kamler & Thomson, 2006; Rose & McClafferty, 2001) and NNES graduate students more specifically (Flowerdew & Peacock, 2001; Paltridge & Starfield, 2007;
Tardy, 2004a, 2009), particularly given the increasing globalization of higher education. However, many efforts to provide advanced-level writing support are confounded by the highly compartmentalized nature of university systems, particularly at the graduate level. Similar to the situation in the beer game, decisions about curriculum and students' needs in many universities are made at the departmental level and are guided both by how each department perceives students' needs locally and how each department defines its departmental boundaries. Not to mention, each department is acutely aware of its physical and material limitations—what it can and cannot do.

Many recent publications on working with doctoral writers, for example, have addressed doctoral advisors or supervisors as a primary audience (Kamler & Thomson, 2006; Paltridge & Starfield, 2007), and anecdotally speaking, I have heard many within university writing programs, writing centers, and EAP programs argue that it is primarily the advisor's responsibility to teach their students how to write within their disciplines. While I agree that a certain amount of this responsibility does rest on advisors, the reality is that many advisors—due to any number of other obligations also critical to their students' professional success—may be limited in just how much they are able to scaffold students' writing and may have difficulty talking explicitly with students about writing processes and linguistic features of which they have a very tacit knowledge.

A common—and understandable—response from many faculty advisors is to refer NNES graduate students to an ESL department or a university writing center to work on issues related to "language" or to "writing." When designated as the official "go-to" place for language-related concerns, many ESL departments and writing centers can quickly find themselves under-resourced and overwhelmed. Larger schools with
significant international student populations and equally significant ESL/EAP programs do often offer courses in academic writing for graduate students (e.g., see Tardy, 2009), but schools with smaller ESL programs—which is the reality even at many large state schools—find it difficult to satisfy the demand for courses in discipline-specific language skills, or may see their department’s purpose as working more generally with students’ oral and written language proficiency. Both large and small ESL programs might find it difficult to offer sustained linguistic support beyond a preparatory ESL/EAP course. Moreover, it does not take many doctoral students bringing dense, multi-chapter dissertations to a university writing center—even a sizeable one—before writing center administrators find their resources tapped out. The overflow of students looking for more than these services provide often trickles into writing programs, as it did in the scenario that prompted this study. Many of these programs, particularly in US contexts, may have traditionally focused more on undergraduate students and might feel at a loss as to how to serve NNES graduate students. I know of one particular case in which a writing program felt ethically obligated to provide something and started a copy-editing service for NNES graduate students, but found very early on that this approach was simply not sustainable.

As in the “beer game,” it is easy to start pointing fingers. However, as Senge (1990) writes, addressing such a situation requires a “shift of mind.” “The feedback perspective,” he writes, suggests that everyone shares responsibility for problems generated by a system. That doesn’t necessarily imply that everyone involved can exert equal leverage in changing the system. But it does imply that the search for scapegoats [...] is a blind alley (p.78-79). In an ideal world, departments across the campus would acknowledge a shared responsibility for students affected by gaps between their
organizations, and would likewise assume a shared responsibility for identifying and plugging these gaps. The problem, however, is that many university systems are far from ideal.

So in such situations, how does one make systemic change? And particularly in university systems where management is highly distributed and compartmentalized, who actually has the power to make such changes? And what sort of changes does one make? As many systems thinkers have indicated, the very notion of systemic change seems to imply big changes, though in many cases this might be the worst thing one can do: the last thing one wants is to replace one dysfunctional system with an equally dysfunctional one, or to undo parts of the system that are working well. Further, changes made within a system—say, at the writing program level—that do not account for how local changes affect other parts of the system tend simply to shift the problem from one part of a system to another (e.g., a seemingly unsolvable ‘problem’ with graduate student writing in an academic department can easily become a much larger, unsolvable ‘problem’ with graduate student writing in a writing center).

When attempting systemic change, systems thinkers look for leverage points—“places within a complex system (a corporation, an economy, a living body, a city, an ecosystem) where a small shift in one thing produces big changes in everything” (Meadows, 2008, p. 1). That is, leverage points are smaller, well-placed, strategic changes requiring minimal effort that prompt a system to evolve by adapting to new environmental feedback. Donella Meadows’ (1999) Sustainability Institute report, “Leverage Points: Places to Intervene in a System,” recounts a revelation she had during a particularly frustrating meeting on massive proposed changes to the global trade regime
(i.e., NAFTA, GATT, WTO, etc.) in which she assembled a list of leverage points in order of increasing effectiveness. I have included the entire list in Figure 6.1, though I will focus on and adapt only a few that appear particularly appropriate to our situation.

The top part of the list, particularly items 10-12, are considered “low-leverage” changes—meaning they are least effective—though they are often the most common methods of attempting systemic change. For example, number 12—“changing constants, parameters, numbers”—involves changing the individuals in or settings of a system but not changing how these components interact. A simple example of this would be a losing sports team that replaces its coaching staff in order to reverse its fate. If unaccompanied by other changes in the dynamics of the team itself, the change in coaching staff is likely

Figure 6.1: Meadows’ places to intervene in a system in increasing order of effectiveness

12. Constants, parameters, numbers.
11. The size of buffers and other stabilizing stocks, relative to their flows.
10. The structure of material stocks and flows.
9. The lengths of delays relative to the rate of system change.
8. The strength of negative (i.e. balancing) feedback loops.
7. The gain around driving positive feedback loops.
6. The structure of information flows (who does and does not have access to what kinds of information).
5. The rules of the system (such as incentives, punishments, constraints).
4. The power to add, change, evolve, or self-organize system structure.
3. The goals of the system.
2. The mindset or paradigm out of which the system—its goals, structure, rules, delays, parameters—arises.
1. The power to transcend paradigms

(Meadows, 1999)

71 Researchers in systems dynamics typically speak of “intervening” in a system, though Checkland and Scholes (1990) make a very critical distinction between intervening in a system—which implies a vantage point outside the system—and interacting with a system—which assumes the perspective of one embedded in a system. The latter choice, I feel, is more appropriate in this situation.
to have little effect on the team’s performance. A more extreme example is the recent
decision of an “underperforming” Rhode Island high school to fire all of its teachers and
administrators (Zezima, 2010). Given the school’s location in a lower-income
neighborhood and its high population of minorities and English language learners, the
system of social and cultural issues contributing to the student’s performance on
standardized tests will be a challenge to the new batch of teachers, as well. Not to
mention, the difficulties involved in orienting and coordinating a completely new faculty
could create its own set of problems that distracts attention from the original one.

Similarly, number 10—“the structure of material stocks and flows”—involves
rebuilding a system that is not working well. While there might be situations in which
total system overhaul is the only solution, the time and expense involved in such a change
make it a low-leverage point. “Physical structure is crucial in a system,” Meadows writes,
“but is rarely a leverage point, because changing it is rarely quick or simple. The leverage
point is in proper design in the first place. After the structure is built, the leverage is in
understanding its limitations and bottlenecks, using it with maximum efficiency, and
refraining from fluctuations or expansions” (Meadows, 2008, p. 51).

The high-leverage changes—those located at the bottom of Meadows’ list—are
most effective, but also the most difficult to enact. In Helping Doctoral Students Write,
Kamler and Thomson (2006) argue for an institutional “writing culture”—one in which
“questions of writing are foregrounded and not confined to the realm of a pre-dissertation
technical fix” (p. 144)—a perfect example of number 2, “The mindset or paradigm out of
which a system arises.” Certainly, such a university-wide mental model is a worthy goal,
but as Kamler and Thomson and most WAC/WID specialists have argued, it’s a longer
term goal that can only evolve over time through smaller shifts within the system (and with a lot of resistance).

Perhaps one of the best and most feasible starting places for the sort of systemic change posed by this study is number 6—"Information flows, the structure of who does and does not have access to information." The anecdote in chapter 1 of the Dutch housing development is an example of this principle. If you remember, houses in this development were identical, except that some had electric meters in the basement, while others had meters in the main hallway. As a result of this simple shift, the houses with meters upstairs consumed a third less electricity, as residents had constant, accessible feedback.

In the following section, I would like to revisit the cases and findings presented throughout this study to see what our systems view of participants' participatory learning says about the sort of information and feedback they are and are not receiving, and to discuss ways of prompting multilingual graduate students to make more conscious and strategic use of feedback from various sources across campus and in their disciplines. Further, I'd like to look more closely at the information flow that occurs between writing support mechanisms, which I argue is possibly more important than the support mechanisms, themselves.

**Feedback and Information Flow: Leverage Points in Graduate Education**

**Advisor/Advisee Relationships**

The interaction between advisors and advisees is an apt beginning point, as this relationship is critical to students' enculturation into academic communities of practice
and their acquisition of disciplinary writing skills. Indeed, advanced writing support—regardless of how well-designed—cannot replace the advisor-advisee relationship. The advisor generally has key information into disciplinary practice in the student’s research area, information to which few outsiders—regardless of how genre-savvy they are—have access. Further, an advisor often models an academic identity—a way of being a professional within a specific community of practice—that is critical to students’ own professional development.

However, I tend to resist attempts to pin the full responsibility of students’ academic enculturation on advisors, just as I resist outsiders telling advisors how they should be mentoring their students. While bad advisors certainly exist, I have also found through these case studies that there are many effective ways in which advisors’ feedback fit into their students’ lives. The key, I believe, is figuring out how best to supplement advisors’ influence.

In Figure 6.2, I have included four simplified rich pictures emphasizing differing configurations of advisor feedback in students’ learning. I have used different colors for different feedback sources: the lighter gray boxes represent students’ primary advisor(s), and the dark gray boxes represent other feedback sources. The solid lines depict information flow; the dotted lines represent places where information is expected to flow, but for one reason or another is not flowing as intended. One should keep in mind two things. First, all the case study participants maintained that they have very good advisor/advisee relationships; some offered glowing praise of their advisors. Second, in each case, the advisor provides critical information, but there is also—inevitably—critical information which she or he does not provide.
In the cases of Gabi and Girmit/Salman, the students rely almost exclusively on advisors’ feedback. In Gabi’s case, Julie is her primary advisor, but Dr. George and—in some cases—Don also assume significant mentor roles, so much so that Gabi essentially has three advisors from which she receives differing types of information. Julie provides Gabi with critical information on the field of natural resource management and models a version of “academic as activist” that has strongly influenced Gabi’s own professional identity. Dr. George provides key advice on writing and culture, a role he

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Figure 6.2. A comparison of participants’ feedback sources

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In figure 6.2, I combined Girmit and Salman, since their advisor/advisee relationships were very similar (though, of course, not identical).
has assumed due to his own writerly inclinations and his knowledge of Gabi’s home language and culture. Don not only provides Gabi access to academic circles, but allows Gabi a window into the everyday life of an academic, something which not every graduate student has. In Girmit and Salman’s cases, the primary advisor serves as the main source of feedback, and, particularly in Girmit’s case, if there was any feedback from outside sources, it is mediated through the advisor.73

In these three cases, the students receive very direct guidance from advisors, though there are advantages and disadvantages to these relationships. Because Gabi is often in the position of reconciling conflicting advice, she sometimes suffers from having a little too much information, and has virtually no outside sources of feedback helping her sort through this information. Girmit has the opposite problem: he receives very strong and specific guidance from his primary advisor, but could probably benefit from a few outside perspectives to help him assume a more critical perspective on John’s advice (which is what John would like Girmit to do). Not to mention, as John indicated, there are substantial cultural factors affecting how comfortable Girmit feels approaching John and questioning his feedback. In Salman’s case, he receives good feedback from his advisor, but unlike Girmit’s advisor—who is fairly savvy about the linguistic and rhetorical conventions of his field—Salman’s advisor admits he has trouble explaining the corrections he makes on Salman’s work, particularly on linguistic matters. That is, Bill has a tacit knowledge of writing and linguistic conventions, but is unable to provide more explicit description of these conventions.

73 For example, Girmit does receive input from other dissertation committee members and from some of his advisor’s colleagues, but he typically consults with John before accepting or rejecting this feedback.
Ana’s and Paulo’s cases are more complicated, as their feedback sources are more distributed than other participants’. Both advisors serve important consulting roles outside their academic lives and are heavily involved in issues of national environmental policy. As a result, their feedback is limited. Ana’s advisor is usually very upfront with prospective students that he is out of the office a lot, and that he distributes the responsibility of providing feedback to junior faculty in his research area and to students in his lab. (In the picture, the darker boxes represent Ana’s labmates). He requires students in his lab to meet regularly and to practice presentations, discuss research problems, etc. As the dotted lines in Ana’s picture indicate, however, she does not always feel she is able to make optimal use of these other sources of feedback, and, by her own admission, she relies more heavily on Danny’s feedback. In his interview, Danny said he’d even asked Ana to meet with his administrative assistant—also a student in Natural Resources—to go over drafts of Ana’s dissertation proposal, but Ana indicated that she had not done so.74

Though Danny does not have the opportunity to provide as much one-on-one time as other advisors, the big-picture support he provides for Ana through his vast array of contacts in academia and in industry is critical to her professional development and to her research. In particular, without Danny’s resources, Ana would not have had the money to conduct her study, and her findings might not have the sort of impact she would like. Thus Danny—and, for that matter, Paulo’s advisor Rob—scaffold their students’ development in a much different way than other advisors.

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74 This was an interesting discrepancy in the interviews, and it could have been due to a misunderstanding between Ana and Danny. Ana did not remember Danny asking her to do this. She had gone to Danny’s assistant with help on some letters and grants, but not for her research.
Due to the differing ways in which advisor feedback can fit into students’ existing feedback networks, I find it problematic to make judgments about which mentoring style is more effective. Further, there are physical limits in many cases to how much feedback one advisor can give. Like Ana’s advisor, Gabi’s advisor, Julie, also takes a hands-off approach in her advisee’s development, though she has expressed the desire and willingness to work more with Gabi; Gabi just feels uncomfortable asking Julie to do too much. Ana’s advisor, however, is simply unable to spend more time than he does commenting on her work, particularly now that he’s assumed an advisory role in President Obama’s administration.

The key leverage point in each of these cases is helping students make better use of outside sources of information to supplement advisors’ feedback, and in cases where their time with their advisor is limited, knowing the types of questions they can ask to make most efficient use of this time. This point leads us to our next source of feedback: peer feedback.

**Peer Feedback**

Across the board, participants’ most underused resource was each other. Each participant admitted that while they worked closely with other students when completing their coursework, they felt somewhat isolated once they entered the dissertation phase, a finding which echoes larger survey-based studies of multilingual graduate students’ experiences (Dong, 1998). In some cases, participants had trouble expressing exactly why or how they lost contact. Paulo’s assertion that his research differed so much from that of his colleagues—i.e., he researches tropical forests, while his peers research temperate
forests—seems to be the most common explanation (even among native English speaking students in the program), though he also admitted to feeling a little shy around American colleagues. (Ana, too, mentioned that her closest working relationship within her lab was with another international student). Further, in Paulo’s case, the other students in his lab had lives and responsibilities outside of school that limited their lab time; in Salman’s and perhaps even Gabi’s cases, their own responsibilities to family or to life partners limited their interaction with colleagues.

Many works on graduate writing support have recommended—as I will later in this chapter—instituting peer writing groups within graduate programs (Aitchison & Lee, 2006; Kamler & Thomson, 2006). Indeed, not only do such groups provide a venue for students to work through significant portions of their work with other students (particularly drafts that are still slightly too messy for advisors’ eyes) but it potentially helps them move from the student role, where they are passively receiving professors’ advice, to a mentoring role, where they are synthesizing and making explicit use of the feedback they’ve received for others’ benefit. Such a move is critical for students seeking jobs in academia, since without these intermediary experiences the shift from the role of “student” to “professor” can be abrupt. Not to mention, peer writing groups are a sustainable writing practice that can continue to serve the student well beyond her graduate student years.

Unfortunately, instituting peer writing is not as easy as putting four to five students in a room and telling them to have at it, as such pedagogical approaches work against powerful mental models that often inhibit students from making better use of peer support in the first place. Often graduate students—and particularly international
graduate students, especially when placed in writing groups with American students—need to be shown that they do have valuable feedback to give others, even if significant gaps exist in their own knowledge. Further, the act of providing feedback needs to be modeled, and students need to be shown how they can contribute to such groups, and how their contribution can benefit them. Students at the beginning stages of their dissertation might feel intimidated by such groups, since they do not yet have much to write, but the experience of commenting on other students’ drafts and observing how more advanced students in the program navigate—successfully or not—thorny issues in their research is potentially very beneficial to them. Similarly, advanced students in a program can benefit from voicing their experience to novice graduate students. Since NNES graduate students who are still developing confidence in their ability to use English academically may feel unqualified to provide advice on other’s writing, one might need to help them see what resources they do have to contribute and, perhaps, to model collaborative methods of revising for grammar and syntax.

The issue of “specialization” that Paulo voiced is one of the bigger obstacles to peer collaboration in the dissertation stage, particularly in an interdisciplinary program. Recent attempts to institute peer writing groups within the IES program have run up against this wall, as students feel unqualified providing critical suggestions on research that falls even a little outside their subject area (though the ability to engage such material critically will be extremely important to them later in their professional lives). For NNES graduate students such as Gabi, Ana, and Paulo, who reported having very discipline-specific English vocabularies, reading outside their specialty might be initially overwhelming, which might account in part for their reluctance to work with other
students. Further, I have found that students in this program are a little reluctant to share their findings and their work with fellow students—a surprising finding given that students in the IES program are not overly competitive. Still, as Paulo observed and as Damrosch (1995) has argued, US graduate programs often implicitly (and sometimes explicitly) treat the graduate student experience as highly individual, even in laboratories where students are working closely on a common project. I found that some students in this program were even reluctant to provide each other with samples of documents they had written, such as dissertation and grant proposals. As Dewey (1916/2007) pointed out in *Democracy and Education*, the focus on individual achievement over collaboration has stubbornly long roots in the American education system. Given the highly collaborative nature of science and industry, this fetish with individual achievement inevitably stops at the classroom door. Thus, encouraging collaboration among graduate students would not only provide them with a sustainable option for writing support within graduate school, but would model the sort of working environment they will enter upon graduation.

**Input-Output Feedback**

By "Input-Output Feedback," I’m referring to two particular trouble spots that have been perennial issues in education: students’ ability to use past academic and linguistic experiences from their individual learning trajectories to facilitate current academic activity, and their ability to abstract principles from current academic activity, prompting them to adjust their academic identity in fruitful ways (i.e., the transfer of

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75 Exceptions existed. Girmit did not have any such documents, as he was the first in his lab to go through all the major steps in the PhD process. He was more than willing, however, to provide his lab mates with copies of his own dissertation proposal.
learning from one domain to another). As we saw with Paulo in chapter 5, cross-cultural differences in academic and linguistic experiences can complicate this process. In many cases—such as writing a methods section—Paulo encountered something different in his current academic activity, but because he encounters so many things that are different across these contexts, he had difficulty explaining why it was different and discerning how to adapt what he knows. Were the differences in writing methods sections cultural, as he first assumed (i.e., different practices in Brazilian and American research communities)? Were these differences tied more to differences in educational settings? Could it be a little of both? Participants, I found, had a tendency to assume most of the differences they encountered were cultural, even if there might have been several explanations.76 Paulo, Gabi, and Ana all indicated significant differences in how they write in their native languages and how they’re expected to write in English, for example, something they commonly attributed to inherent differences in the languages. For example, Gabi stated several times in her interviews that “English is an objective language, and Portuguese is not”—that English, as a language, is more simple and direct, whereas Portuguese is more “poetic.” While there are elements of truth to this perception, as Dr. George pointed out, much of this difference can also be attributed to differences in oral and academic uses of these languages.77

In short, participants sometimes had difficulty applying knowledge from previous contexts. Though again in Paulo’s case, we see he had developed significant meta-

76 Note: I am not implying here that these issues are not cultural. I would argue culture to be one of several factors contributing to this confusion. The tendency to label every difference as strictly “cultural” often obscures the number of interrelated factors—cultural, disciplinary, personal, or institutional—that might be contributing to any one phenomenon.

77 Granted, this is Dr. George’s opinion, but a well-founded one, nonetheless. Not only is Dr. George fluent in Portuguese, but he has significant experience reading and translating Portuguese-language research.
knowledge of some of his experiences through reviewing articles, through networking with others in his field etc. In these cases, students can be made aware of how valuable this insight is to other students in their program, and how personally beneficial sharing this wealth of experience can be.

More significantly, as we saw with Salman, students sometimes struggle to abstract *principles* of language use from their current academic activity that can be used in later tasks, particularly given the tacit nature of some of the feedback they receive from advisors. Many of our default models of writing support miss this critical aspect of learning. We often design writing courses with the notion of *preparing* students for some later task. Though Tardy (2009) has shown that introductory EAP courses can facilitate students’ continued development of academic genre knowledge throughout their academic careers, certain aspects of writing in highly specialized fields are simply too idiosyncratic to be anticipated in such a class, and often students need additional support while in the thick of academic activity. In Girmit’s case, Girmit’s advisor fills this role well. Girmit mentioned that John frequently takes time to debrief him on his presentations, as I witnessed briefly myself in the hallway after Girmit’s dissertation proposal defense. In other cases, students might benefit from an outside perspective on a particularly difficult writing experience, particularly in cases such as Gabi’s, where the student receives conflicting feedback from multiple advisors.

**Principles for Designing Holistic Writing Support Mechanisms**

In the previous section, I highlighted just a few areas in the experiences of international graduate students where feedback can be improved; this list is by no means
exhaustive. For example, graduate students—and particularly international graduate students—can often experience significant difficulty networking within their academic fields, for any number of reasons. However, the three areas highlighted are sufficient for discussing principles for designing holistic writing support mechanisms. The best writing support, I argue, taps into and complements academic networks students already have in place, while supplementing those that are not working as efficiently as they could be, an approach which necessitates the sort of in-depth look into students’ current learning processes undertaken in this study. The discussion in this next section is more theoretical and is based not only on the case studies in this book but on some of my own experiences (successful and unsuccessful) experimenting with writing support mechanisms for international graduate students. As I will discuss in the final section, however, much more research is needed to identify effective ways of instituting systemic, networking models of writing support. My intention here is merely to introduce guiding principles to ground such work.

To be fair, some of the forms of writing support that I will discuss below are not, in and of themselves, new. Aitchison and Lee (2006), for example, have written about establishing peer writing workshops for graduate students and Mike Rose has described a workshop-based class that he instituted through the Graduate School of Education and Information Studies at UCLA (Rose & McClafferty, 2001). Perhaps more important than the forms of writing support that are put in place, however, are the ways these support mechanisms interact with each other to form a network of resources students can access at multiple times throughout their academic development. Below, I have detailed five principles for holistic writing support for international graduate students.
• **Distribution without division.** The default "division of labor" model of academic writing support (i.e., for language concerns, go to the ESL department; for disciplinary concerns, go to your advisor), is understandable to an extent, as it acknowledges the reality that no one entity on campus has the resources or the expertise to meet all the multi-faceted needs of multilingual graduate students. When one department, resource, or, as Shuck (2006) demonstrates, person, is the designated "go-to" place for writing concerns, university systems very quickly fall into a pattern systems theorists refer to as "The Tragedy of the Commons" (i.e., more than one department dips individually into a common resource, very quickly depleting it) (Senge, 1990, p. 387). However, it is equally problematic to divide a highly-integrated practice such as academic writing in a second language into discrete components to be handled in separate departments. The trick, as I will elaborate in the next two points, is to distribute writing resources across university departments *without* making such divisions.

• **Redundancy or overlap in writing resources.** Redundancy might be something every writing teacher wishes to eliminate from student writing, but it is a highly valued concept in systems design. In computer networking for example, it means there are multiple components performing similar functions, thus preventing any one component from being overloaded and providing a failsafe in case part of a system fails. In terms of writing support, redundancy entails putting multiple, interconnected forms of support in place—for example, launching a workshop-based graduate writing course *in conjunction with* working with the graduate
school, writing center, or international student office to help set up graduate peer writing review groups.

From a purely practical perspective, this approach provides an alternative for students who for one reason or another are not able to take the class (e.g., the class maxes out or conflicts with students' schedules). Not to mention, it potentially distributes the responsibility of providing writing feedback across a larger number of people. However, these two forms of support aren't just "redundant"; they could also complement each other nicely. As I will discuss below, peer writing workshops can very quickly fizzle out without some sort of structure or oversight. Considering the difficulty of overseeing even five to ten peer writing groups on a campus—not to mention twenty or thirty, if such a program is successful—the next available option is to use such a writing course to work closely with a small group of students from diverse disciplines on peer workshop strategies, and these students can then help facilitate peer writing workshops outside of class.

- **Communication among the resources.** Again, the number and the types of advanced writing support are not as important as the sort of communication that occurs between them and—in ideal settings—across university departments, a fact I was reminded of at a presentation at the 2010 Conference on College Composition and Communication in Louisville. A group of researchers from McGill University and the University of Alberta reported on a large, survey-based study of doctoral student writing support in Canadian universities, a portion of
which included interviews with writing center directors (Graves, 2010). American attendees were initially surprised by the number of writing center directors interviewed, until it was explained that Canadian universities typically have multiple writing centers, staffed with consultants who are well-versed in the discipline in which the center is situated. (The University of Toronto, for example, has sixteen writing centers). The difficulties Canadian writing center directors expressed, however, were not that much unlike those of American writing center directors (who might be directing the only center on campus). While presenters' data were still preliminary, they concluded that the difficulties stemmed from lack of communication between centers and disciplinary faculty. (Such a finding reinforces Meadows (1999) claim that information flow is a higher leverage point than changes in number or parameters).

In keeping with my previous claim that departments on campus have a shared responsibility in the success of international graduate students, cross-disciplinary collaboration is ideal when possible, though it can be difficult to negotiate. If cross-disciplinary collaboration is initially difficult, at least the functions and relationships among support mechanisms can be clearly communicated. For example, university writing centers very often lack the time, space, and personnel to go through a student’s entire dissertation, though this might often be the expectation students have of writing center services. However, if writing center services for graduate students were paired with outside peer writing workshops, then it can be explained that the function of writing center time is to work on
representative portions of a dissertation and to talk explicitly about strategies and conventions they might address in their peer workshops.

- **Multiple points of access to any given resource.** Quite simply, when writing support is front-loaded and offered only at the beginning of a student's academic career, few options remain later for when they are engaged in critical high-stakes writing. As I will explain later in this chapter, in ideal situations, students are surrounded by a network of resources than they can access at multiple points throughout their academic career.

- **Sustainability.** In all cases, sustainability should be the goal of every resource put in place—both sustainability of the support mechanism and sustainability of the learner. For example, peer writing groups, while needing some oversight for their initial structure and maintenance, have the potential to be largely student-run resources, thus not requiring the sort of funding a class requires. Further, if they are instituted in collaboration with some other campus organization—e.g., a graduate student organization, the graduate school, another campus department—the potential exists for other disciplines and disciplinary faculty to recognize the value of these groups and to take ownership over their maintenance. Thus, while a writing program or writing center might have extra legwork to do in setting up such a resource, the resource could, potentially, sustain itself. However, the other possible scenario, particularly if writing groups are instituted without a lot of communication with other campus entities, are that the department instituting the
workshops could be continually burdened with maintaining them, or the writing groups could die out before getting off the ground. In particular, if the writing groups are housed in or coordinated initially by a university writing center, others in the university may see them exclusively as a writing center service.

Similarly, the goal of these resources should ultimately be the sustainability of the learner—i.e. providing multilingual writers with strategies for continuing to learn through their academic careers, and helping them make the best use of resources that they do have (particularly their advisors). When speaking with faculty and students in the IES program, I found that there were numerous untapped resources students could have made better use of but never thought to ask. For example, I asked participants if their advisors had ever shown them in-process versions of their own writing. Overwhelmingly, students responded that unless they were actually working on a project with their advisors, they never saw their advisors' in-process writing. When I asked the same question to faculty, many responded positively, saying it would be a good idea and fairly easy to do; they just hadn't thought to do it. Perhaps the most useful function a writing course, a writing center visit, or a peer workshop can serve is to show students the sorts of opportunities they might have to learn peripherally from their advisors and colleagues, and to help them generate lists of very specific concerns they can bring to their advisors, thus making optimal use of their mentor's expertise.

In Figure 6.3, I have included an image depicting advanced writing support as a web of resources encircling a student, each resource interacting with the others, and each
available throughout students' academic careers. The key, again, is how these resources supplement each other. The writing course, which could be either strictly for NNES graduate students or for all graduate students, would focus on academic genre knowledge, as described in Swales and Feak (2000) and Tardy (2004a, 2009), but it would also serve two other critical functions: optimizing the lines of communication between the students and their advisors and modeling strategies for creating and participating in peer writing workshops.

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Note: This model is based on resources that are either already available or easy to implement at NLGU. This model's configuration would change in each institution given available resources. E.g., a school with a more active international student support office might work that office into the network, while a school without a writing center would probably not see starting a writing center from scratch as suitable first step.

If the course is made available for all graduate students, the instructor should still be prepared to assist international students with some of their particular cultural or linguistic concerns.
Peer writing workshops would serve the dual function of continuing the line of support offered in a class and relieving advisors of some of their load responding to students' writing. Peer writing groups could serve as the workhorse in this model, allowing students to workshop very rough drafts of their work and to cover larger blocks of text than can be handled in a writing center or in a workshop-based writing course. Peer respondents can help fellow students think through tough spots in their writing, allowing the advisor to comment on later-stage drafts. Not to mention, peer writing groups can help students generate a more specific list of concerns to ask an advisor, thereby optimizing advisor-advisee time. If the advisor is so inclined, she can even coordinate with peer writing groups, giving students very specific tasks to work on with their peer writing groups.

The writing center performs an important intermediary function between the advisor and the peer writing workshops, providing students with more explicit explanation of some of the more tacit advice they might be given by their advisors or peers. For example, a writing consultant might use Swales and Feak's (2000) chapter on writing a literature review to help students process some of the feedback they're being given, or just to discuss portions of students' own literature reviews. They could then either generate a list of specific questions on generic conventions to ask an advisor or assemble a list of action steps to be taken in future drafts.

Granted, this portrait of holistic writing support mechanisms for NNES graduate students is ideal; in reality, any number of factors might complicate the smooth running of these resources. Nonetheless, “information flow” is still an apt leverage point for at least starting a more holistic network of advanced writing support.
Up to this point, I have examined closely the needs of NNES international graduate students and the type of support mechanisms that might aid their development as writers across their university careers. I have not yet broached the question of just who is responsible for providing this support. As I argued in the opening chapter, university administrations do have an ethical responsibility to provide for international students—particularly in cases where universities are actively recruiting such students—as universities benefit in many ways from having an international presence on campus. The US State Department’s EducationUSA website does place this responsibility squarely on administrators’ shoulders, and for good reason. As many WPAs or writing center directors would argue, providing such support locally without backing from the school administration can be very challenging. While I agree that universities share responsibility for such support, I fear that shifting the entire burden of international student support onto university administrators may result in leaving a number of international graduate students’ most critical needs unmet and unnoticed.

The conversation around internationalization among university administrators very often focuses more exclusively on practical matters—such as housing or funding—or general acclimation. In fact, one can even see this focus in the US State Department’s recommendations for “creating an international student-friendly campus,” which I have listed below:

- Offer a separate orientation for new international students to ensure that initial adjustment needs are met.

- Explore with your Food Services outlets on campus the options for kosher/halal meals.
• Ensure that there are housing options for new international students.
• Make a special effort to integrate international students into the mainstream of student life on campus and into the local community.
• Provide options for additional English instruction for non-native speakers if needed.
• Provide housing options for international students during vacation periods.
• Provide access to a local host family program to serve the needs of international students enrolled.

Granted, each issue listed above is important for students' general acclimation to life at US universities. Further, it is significant that the US State Department acknowledges the need for additional language support. How this recommendation is interpreted by university administrators is anyone's guess. Often, administrative overtures toward linguistic support are heavily influenced by the "myth of transience" scholars in writing studies, Writing Across the Curriculum (WAC) and English for academic purposes have repeatedly challenged—the belief that "if we can just do x or y, the problem will be solved [...] and higher education will be able to return to its real work" (Rose, 1985, p. 355). In other words, administrators may assume that the challenges of academic writing in a second language can be addressed by a few introductory ESL classes, or worse, by the availability of language learning software such as Rosetta Stone. In other cases, university administrators may understand the complexity of academic literacy learning, but may not know how to address this complexity—how to structure language and writing support to facilitate students' development throughout their time at US institutions.
As a field, composition studies has the research, the expertise, and the resources to shape these conversations—these conversations are not new to us. Composition scholars have written extensively about the need to support undergraduate writers' development beyond the first-year writing course. We have developed theoretical and pedagogical frameworks for examining the dynamic nature of generic conventions and the context-specific nature of language use (Bawarshi, 2003; Bazerman, 1988; Russell, 1991, 1995; Thaiss & Zawacki, 2006). At many universities, we have instituted writing centers and WAC programs to support students' writing development in other departments. However, as a field, we have historically prioritized undergraduate writing, for any number of reasons (Rose & McClafferty, 2001). The demographics of US universities are changing, as are the writing needs on many US campuses. Composition studies must adapt to these changing conditions; writing programs must consider ways that we—in concert with TESOL and other departments on campus—can contribute to the increasing internationalization of US campuses and can better serve the evolving needs of university students.

As writing specialists, we may lack the administrative clout to enact global changes on college campuses, but we do have the power to enact small changes with the potential to affect how universities see the needs of international graduate students—to help universities see international graduate students as writers, and to argue for writing support as an integral part of these students' socialization process. We can initiate cross-campus dialogues on international graduate students' needs; we can expand the scope of our existing resources—writing centers, for example—and make a more conscious attempt to work with these students; and we can devote more of our research to
examining how our existing initiatives, particularly WAC/WID programs, can be expanded to account for changing student populations in US institutions. As Damrosch (1995) writes in *We Scholars: Changing the Culture of the University*, the decentralized nature of the academic system can often be initially off-putting, but we should not underestimate the potential for strategic, well-placed local changes to have “profound” and long-lasting effects across university systems (p. 159).

**Directions for Future Research**

In this study, I have taken a holistic look at the experiences of international doctoral students in a US graduate program, a project which synthesized a wealth of useful research in composition studies, ESL writing, and English for academic purposes. More qualitative, in-depth explorations of how these students negotiate university systems would help paint a more complex portrait of these processes and would identify areas for examination in larger scale studies of learning in graduate school.

Given the increasing number of multilingual graduate students in US institutions and the push toward globalizing higher education, it is perhaps time for research universities to take a hard look at how US graduate programs are structured and the impact of changing conditions (e.g., increased pressure for graduate students to publish, more competitive job markets, etc) on these students’ experiences. Writing researchers could lead the way on this effort. Such studies would take a larger systems view of available writing support across universities. Doreen Starke-Meyerring from McGill University is leading one such research effort, currently entitled *The State of Doctoral Writing in Canadian Doctoral Education: A Cross-Disciplinary Study of Practices*,


Challenges, and Resources. This three-year project, funded by the Social Sciences and Humanities Research Council of Canada, surveys graduate students, advisors, graduate directors, and writing center directors at research institutions across Canada, examining the role that writing plays in students’ professional development, professors’ attitudes toward student writing, and available writing resources for doctoral students. Such a study performed in US settings could be useful in identifying the experiences of native and non-native English speaking graduate students in US institutions and recommending methods of addressing graduate students’ writing concerns more systematically.

Furthermore, to date, much of the research on writing resources for doctoral students and/or international graduate students have focused more exclusively on a particular class or workshop put into place within a department—e.g., Rose and McClafferty’s (2001) description of a workshop-based class they designed at UCLA, or Tardy’s (2009) description of an EAP class at “Midwest University.” Given the trend toward internationalization, many universities have taken steps to provide more systematic support networks for multilingual graduate writers, and many of these efforts have involved university writing programs or writing centers, EAP or ESL departments, or both. Studies of cross-departmental efforts to institute support mechanisms for multilingual graduate students could provide universities, writing programs, and writing centers with ideas for making more efficient use of departmental or campus resources, and could identify factors that enable or impede the effectiveness of such support mechanisms.

A description of this on-going study can be found at the following website: http://webpages.mcgill.ca/staff/group1/dstark1/web/starke-meyerring/docwriting.htm
Like Kamler and Thomson (2006), I believe the ultimate goal for writing programs is to nudge universities toward adopting the sort of "writing culture" that foregrounds writing as a significant part of research endeavors at all levels. As I have argued in the previous chapter, accomplishing this goal requires writing specialists to acknowledge that we also share responsibility in supporting international graduate students at our institutions. To this effect, I am still struck by one of the first conversations I had with Ana after she agreed to participate in this study. While providing background for the study, I mentioned that my field—composition studies—typically concentrates more on undergraduate writing instruction. She looked at me, perplexed. "Why would you do that?" she asked. "Undergraduates don't care about writing. Graduate students, however, need writing." While I believe that undergraduate and graduate writing support are equally important, Ana's frank assessment of our field's priorities speaks volumes. Composition studies has much to contribute to the discussion of international graduate student support; it is time we entered the conversation.
REFERENCES


US Department of State. EducationUSA. http://educationusa.state.gov/.


APPENDICES
APPENDIX A: GUIDING FACULTY AND ADVISOR INTERVIEW QUESTIONS

Program Faculty Interviews
1. Please provide an overview of your field/discipline and its role in IES
2. In what ways do you work with students in the IES PhD program? (For example, in classes? On dissertation committees?) Describe your interactions with these students.
3. Describe the type of writing IES PhD students are expected to do in classes or for their professional development.
4. Describe your expectations for dissertation prospectuses from IES doctoral students. What information do you expect students to provide in a dissertation prospectus? In what ways is the prospectus similar to/different from a research article?
5. Describe your general experiences with international graduate students in IES? Approximately how many have you worked with? What were some of the particular concerns you’ve had with international students’ written work, and, conversely, what were some of these students’ strengths?
6. What types of positions have international students you’ve worked with received after completing their degrees? Have they generally found jobs in the US? Or have they returned to their home countries? (Or, if appropriate, what type of position are international students you are working with seeking after completing their degrees? Are they planning to remain in the United States, are they planning to return to their home countries?) What are some of the benefits and drawbacks for each of these decisions?
7. It is said that English has become the international language of communication in many academic fields. To what extent is this true in your field? What are the benefits and drawbacks of this phenomenon, both for the field and for your own students?

Advisor Interviews

The content of the advisor interview varied considerably based on issues that emerged in the participant interviews. Below is a list of general items discussed in this interview:

- A general overview of the field and of the IES program
- A discussion of the advisor’s perspective of advisor/advisee relationships (in general), and his/her advice for students preparing to enter the field.
- A discussion of the degree to which the field has become international, the degree to which English is used as an academic lingua franca outside the US, and the similarity/differences in research concerns in American settings vs. international settings.
- His/her expectations of student writing (in general) and the dissertation prospectus (in particular). The interviewee would either be asked to comment on a neutral
• draft not composed by the advisee, or (if the student consents) on the student’s draft.
• His/her general experiences working with international students, and the type of positions international students generally receive upon graduation.
APPENDIX B: GUIDING PARTICIPANT INTERVIEW QUESTIONS

Stage 1: Personal Academic Histories (60 minutes)

1. General education background
   - Country and city of origin?
   - Family’s educational history (e.g., How much education did parents receive? Was attaining an education a priority in your family?)
   - Provide a brief summary of your educational history, including where you attended high school and college (graduate and undergraduate).
   - Have you gone straight through school, or have you taken time off between degrees? How did you spend your time off between degrees?
   - How did you decide on your current field of study?
   - How have your interests evolved over the course of your education? (In other words, have you always wanted to pursue this line of study, or have your interests changed over time?)
   - (Optional) Describe a significant educational experience that you feel has contributed to your intellectual development.

2. Graduate education
   - Has all of your graduate education been in American settings, or have you attended graduate school in another country, as well?
   - What were your reasons for attending graduate school in America? Did you have the option of attending school in your home country?
   - Describe the program where you received your Masters degree. Describe a project you worked on and/or a professor you worked with.
   - What do you see as the chief differences between education in your home country and graduate education at an American school?

3. Academic Writing Experience
   - Describe a few academic writing projects you have worked on before starting your current program (i.e., course papers? Previous research?)
   - Have you had to perform research and write in your first language or in a language other than in English? If so, what do you see as the chief differences between writing in these two settings?
   - Describe previous experiences writing academically in English. Describe a specific project you had to complete in English. What do you feel you might have learned about writing in English from this experience? In what ways do you feel you were successful? In what ways do you feel you could have done better?

4. Professional/Academic Goals
   - Would you like to return to your home country after receiving your degree, or will you look for a job in America. (If undecided, what are your preferences?)
   - Describe the type of position you would like to receive after graduating
• To what extent do you feel you will continue writing in English after graduating? Will you also publish academic articles in your first language or in a language other than English?
• How important do you feel English is to success in your field of study?

Stage 2: Present Experience in the IES Program (60 minutes)

1. Overview of Participant’s Program of Study
   • Provide an overview of both the IES program and your field of study. (or, How would you define your discipline?)
   • Describe the courses you are asked to take and the way they contribute to your particular field of study. Do you take courses that are “outside” your particular field of study? What kind of contact do you have with professors and students in the Natural Resources who are not in your specific field?
   • What do you see as the benefits and drawbacks to studying in an interdisciplinary field such as Natural Resources?
   • What opportunities do you have to interact with professionals in your field of study from other universities, both in the United States and/or abroad?
   • What were your experiences with your field of study before coming to an American university? What do you see as chief similarities/differences (Cultural? Topical? Institutional?) in this discipline in American settings and in your home country?

2. Current Academic Writing
   • Describe the type of writing you are currently doing for your academic and professional life. (Include both projects done for class and other writing, such as prospectuses, grant proposals, conference proposals, PowerPoint presentations, etc.) (Note: if needed, refer to writing sample)
   • What do you see as your chief strengths and weaknesses as a writer? What feedback do you receive from professors and peers about your writing? (Note: if needed, refer to writing sample)
   • How confident do you feel about your abilities to write the necessary documents for your field?
   • In what ways is the writing you are doing in this program now similar to and/or different from the writing you anticipate doing as a professional in your field?

3. Relationship with advisors and peers
   • Describe the relationship you have with your advisor. What sort of assistance or guidance does she or he provide? What opportunities do you have to work with your advisor on projects?
   • What do you feel is your advisor’s role in your education?
   • To what extent is your advisor/mentor preparing you for your future academic or professional life?
   • Describe the relationship with other students in your program. What type of help or support do you receive from them? Do you have the opportunity to work with them on projects?
4. **General Experience**
   - What do you see as the most rewarding aspects of being an international student in your program? What do you see as the greatest difficulties?

Stage 3: “Textual” Interview (60 minutes)

Stage 3 interviews varied from participant to participant. See Table 2.1 for texts used for these interviews. Issues addressed in this interview included—but were not limited to—the following:

   - The general process by which the participant composed the text(s)
   - Questions about the genre of the text(s) and the similarities/differences the student sees between this text and others of its type
   - Particular problems and/or successes they experienced composing the text(s)
   - Feedback the participant might have received from her advisor or other students
   - Similarities/differences between how the participant wrote this text and how they might have written similar texts in other contexts (i.e., similarities/differences in organization, style, rhetorical choices, etc.)
   - Similarities/differences in how they might have presented this text for other audiences.
APPENDIX C: INTERNATIONAL STUDENT SURVEY

Appendix 2: International Student Survey (Natural Resources)

I. Demographic Information

1. Home Country: 2. Age:
3. Other countries lived in: 4. Gender:
5. First language: 6. Length of time in the US:
7. Other languages: 8. Length of time at UNH:

9. How long have you been using English outside of school settings?

10. How many years of formal English instruction have you had?

11. What ESL or academic writing courses (if any) did you take at NLGU?

II. Professional Background and Objectives

12. Field of study within Natural Resources: 13. Degree (circle one): master's / doctorate / other

14. What academic papers have you had to write in English? In another language? (Include any work written in school, the workplace, or professional activities, and specify which language it was written in)

15. Have you written a thesis for your bachelor’s degree or master’s degree? If yes, in what language? In what country?
16. How important is English within your field? Circle the most appropriate answer.

   Not Important / Somewhat Important / Very Important / Essential

17. In general, how would you describe your English competence for professional activities? (for example, coursework, research, writing professional papers, attending conferences, communicating with others in the field) Circle the most appropriate answer.

   Weak / Adequate / Strong / Fluent

18. How many professional conferences have you attended conducted mainly in English? In another language?

19. After receiving your degree, would you like to return to your home country or stay in the US? (If you are still undecided, what is your preference, and why?)

20. After you have received your degree and entered your profession, how often do you think your will use English for professional activities (for example, research, reading research, writing professional papers, communicating with others in your field, attending professional conferences, etc) Circle the most appropriate answer:

   Never / Occasionally / Half of the Time / Most of the Time / All of the Time

21. What other languages (if any) might you expect to use for the professional activities listed in the previous question, and when might you expect to use them?

III. Language and Academic Communication

22. English has become the primary language of communication in many academic fields. In your own view, what are the benefits of this situation, if any? What are the negative aspects of this situation, if any?

23. As a researcher from a non-English speaking country, do you ever feel that you are at a disadvantage when participating in professional activities? Explain and/or give an example.

24. As a researcher from a non-English speaking country, do you ever feel that you are at an advantage when participating in professional activities? Explain and/or give an example.

25. Imagine that all languages were equally valued and used in international academic communication. If you were given a choice, in what language would you prefer to conduct the following professional activities? (see table below)
<table>
<thead>
<tr>
<th>Activity</th>
<th>Preferred Language</th>
<th>Why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing up research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending conferences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Country</td>
<td>Age</td>
<td>Other Countries Lived in</td>
</tr>
<tr>
<td>--------------</td>
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<td>--------------------------</td>
</tr>
<tr>
<td>1. Canada (Quebec)</td>
<td>31</td>
<td>Brazil</td>
</tr>
<tr>
<td>2. Pakistan</td>
<td>33</td>
<td>M</td>
</tr>
<tr>
<td>3. Fiji</td>
<td>28</td>
<td>M</td>
</tr>
<tr>
<td>4. Italy</td>
<td>33</td>
<td>M</td>
</tr>
<tr>
<td>5. South Korea</td>
<td>29</td>
<td>None</td>
</tr>
<tr>
<td>6. Colombia</td>
<td>32</td>
<td>USA</td>
</tr>
<tr>
<td>7. Nepal</td>
<td>29</td>
<td>Thailand, USA</td>
</tr>
<tr>
<td>8. Brazil</td>
<td>30</td>
<td>Brazil</td>
</tr>
<tr>
<td>Field of Study</td>
<td>Academic papers, English or Other</td>
<td>Master's thesis language</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-----------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>1. Social Sciences in Public policy</td>
<td>Reports, Essays, in English (Not sure what you want to know)</td>
<td>Masters thesis in French</td>
</tr>
<tr>
<td>2. Oceanography</td>
<td>All academic papers in English</td>
<td>Ms Thesis—English</td>
</tr>
<tr>
<td>3. Oceanography</td>
<td>All in English MS thesis 1 paper in Journal of South Pacific</td>
<td>MS thesis in English, Fiji</td>
</tr>
<tr>
<td>Professional Background and Objectives (continued)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4. Fisheries dynamic policies</strong></td>
<td>3 policy testimonies (En) 1 report for NFO (En) Various course assignments (En) PhD proposal (En)</td>
<td>Yes, in Italian, in Italy</td>
</tr>
<tr>
<td><strong>5. Atmospheric chemistry</strong></td>
<td>One paper published in a journal; several class papers</td>
<td>Yes I wrote my master's thesis in Korean</td>
</tr>
<tr>
<td><strong>6. Fisheries management</strong></td>
<td>Reports, exams, doctoral proposals, letters, scientific papers for journals, all of them in English</td>
<td>Yes, Spanish, Colombia</td>
</tr>
<tr>
<td></td>
<td>Professional Background and Objectives (continued)</td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>---------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Atmospheric chemistry</td>
<td>I've to write all papers in English</td>
</tr>
<tr>
<td>8.</td>
<td>Forestry</td>
<td>Scientific articles (publication). I also want a scientific article in Portuguese</td>
</tr>
</tbody>
</table>
## Language and Academic Communication

<table>
<thead>
<tr>
<th>Positive and negative aspects of English as Academic language</th>
<th>Do you feel you are at a disadvantage participating in professional activities?</th>
<th>Do you feel you are at an advantage?</th>
<th>Reading Research (preferred Language)</th>
<th>Writing research (preferred language)</th>
<th>Attending Conferences (Preferred Language)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It's a universal language and it allows to know the work done in other countries</td>
<td>No. Now I speak English and I can make my point. I can even make my point in French and Portuguese! Too bad for them they cannot! (It's very nice to speak my own language with my family and friends, but research is research and it needs to be done in a common language)</td>
<td>(blank)</td>
<td>English</td>
<td>English</td>
<td>English</td>
</tr>
<tr>
<td>2. Benefits: 1) greater accessibility and wider audience, 2) standardization of terminology. Negative: Bias towards non-English speakers</td>
<td>Yes. Some of important consideration are 1) Miscommunication, 2) Embarrassment in not understanding/failure to convey the meanings, 3) Not able to read huge literature</td>
<td>No</td>
<td>Native Higher reading speed/comprehension in native language as compared to English.</td>
<td>English For publishing in journal and fulfilling reports/theses requirement</td>
<td>English Same terminology</td>
</tr>
<tr>
<td>3. Better relay of information. Easier to read paper in one common lingo then different lingo for</td>
<td>No, unless it is a French activity</td>
<td>No. My inexperience in my field keeps me at bay</td>
<td>English—I read English faster than Hindi</td>
<td>English—Easier to type English &amp; office does not have Hindi</td>
<td>English—Easier to follow English. (P.S.) Fiji is former</td>
</tr>
</tbody>
</table>
4. I don’t see any benefit, it was French before, and Latin even before. In the future it will probably be Spanish. Negative aspect is only for English native speakers that learn another language. In general no, however I found myself in working groups with professors and postdocs and when the technical conversation was very fast and conceptual I had a hard time keeping up. I have the advantage of being able to access literature in many languages. English (I know most of the technical terminology in English).

5. Negative aspects: I’m in science field, so I just have opinion about English in science field. As we use English as a communication tool, western scientist becomes better position than eastern scientist. The other aspect, western nations have more money and they. Yes, I can’t participate in free discussion about my study field because of my poor understand to other’s opinion and my slow speaking. If I use English, my brain would also work slow. Korean (My mother tongue is definitely easy to understand.
invest to science, so their better position could be explained, but using English plays definitely an important role to it.

6. It is a universal language | Yes, I am in disadvantage in all my professional activities that involve English because I am not fluent English speaker | Yes, because I know two languages, and I can interact in both environments | Spanish, English (It is my first language—high quality research products) | Spanish English (practice it) | Spanish English (Interact with people from other countries with similar interests.)

7. |

8. Positive: English is a kind of language relatively easy when compare with another language; Scientific writing should be done in English, because that… | In terms of technical/scientific matters, I do not feel in disadvantage. However, because of my accent or because I cannot express my thoughts in a common English usage, I do feel in disadvantage especially in conferences | Yes. Because I am studying my country in my professional activities (research). I know more about Brazil or forest in Brazil than a non-Brazilian researcher | English | English | English

Negative: We are losing our nationalism! English in other countries should be only a second language
APPENDIX E: IRB APPROVAL LETTERS

University of New Hampshire
Research Conduct and Compliance Services, Office of Sponsored Research
Service Building, 51 College Road, Durham, NH 03824-3585
Fax: 603-862-3564

26-Feb-2008

Simpson, Steve
English, Hamilton Smith
45 New York St. #7
Dover, NH 03820

IRB #: 4176
Study: A Situated Qualitative Study of International Graduate Students
Approval Date: 26-Feb-2008

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has
reviewed and approved the protocol for your study as Expedited as described in Title 45,

Approval is granted to conduct your study as described in your protocol for one
year from the approval date above. At the end of the approval period, you will be
asked to submit a report with regard to the involvement of human subjects in this study. If
your study is still active, you may request an extension of IRB approval.

Researchers who conduct studies involving human subjects have responsibilities as outlined
in the attached document, Responsibilities of Directors of Research Studies Involving
Human Subjects. (This document is also available at http://www.unh.edu/ocr/compliance/irb.html.) Please read this document carefully before
commencing your work involving human subjects.

If you have questions or concerns about your study or this approval, please feel free to
contact me at 603-862-2003 or julie.simpson@unh.edu. Please refer to the IRB # above in
all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,

[Signature]
Julie F. Simpson
Manager

cc: File
Newkirk, Thomas
University of New Hampshire
Research Integrity Services, Office of Sponsored Research
Service Building, 51 College Road, Durham, NH 03824-3585
Fax: 603-862-3564

10-Feb-2009

Simpson, Steve
English, Hamilton Smith
10 Sun Hawk Lane
Dover, NH 03820

IRB #: 4176
Study: A Situated Qualitative Study of International Graduate Students
Review Level: Expedited
Approval Expiration Date: 26-Feb-2010

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved your request for time extension for this study. Approval for this study expires on the date indicated above. At the end of the approval period you will be asked to submit a report with regard to the involvement of human subjects. If your study is still active, you may apply for extension of IRB approval through this office.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the document, Responsibilities of Directors of Research Studies Involving Human Subjects. This document is available at http://www.unh.edu/osr/compliance/irb.html or from me.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or Julie.simpson@unh.edu. Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,
Julie F. Simpson
Manager

cc: File
    Newkirk, Thomas
19-Feby-2010

Simpson, Steve
English, Hamilton Smith
10 Sun Hawk Lane
Dover, NH 03820

IRB #: 4176
Study: A Situated Qualitative Study of International Graduate Students
Review Level: Expedited
Approval Expiration Date: 26-Feb-2011

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved your request for time extension for this study. Approval for this study expires on the date indicated above. At the end of the approval period you will be asked to submit a report with regard to the involvement of human subjects. If your study is still active, you may apply for extension of IRB approval through this office.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the document, Responsibilities of Directors of Research Studies Involving Human Subjects. This document is available at http://www.unh.edu/ors/compliance/irb.html or from me.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or Julie.simpson@unh.edu. Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,

Julie F. Simpson
Manager

cc: File
    Newkirk, Thomas