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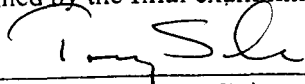
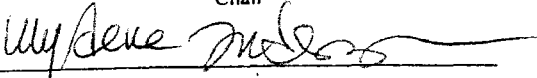
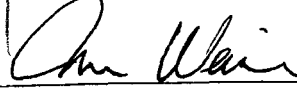
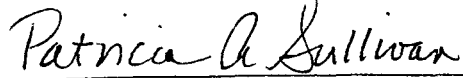
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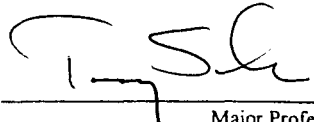
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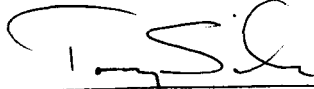
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HACKER WRITERS:
A STUDY OF THE LITERACY PRACTICES OF SELECTED WRITERS IN A
COMPUTER SCIENCE RESEARCH LABORATORY

A Thesis

Submitted to the Faculty

of

Purdue University

by

Scott Joseph Baxter

In Partial Fulfillment of

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My daughter, Marta, is far too young to have any idea of the activities involved in writing a dissertation. But her young smile consistently reminds me that there are wonderful things in life beyond the dissertation.

Chris Tardy and Xiaoye You started in the ESL doctoral program on the same day I did in August of 2000. We were in many classes, attended many

lectures, parties, and other events together. They both had an excellent sense of perspective and helped me adjust to the demands of graduate school and life in the Lafayette area.

In March of 2005, I happened to be on the same plane as Xiaoye, going from Denver to Indianapolis. When the flight landed, Xiaoye offered me a ride back to West Lafayette in the 1989 Ford Escort that I had sold to him five years earlier. During the ride we talked about research agendas, teaching loads, and institutional politics. It was during that ride that I realized Xiaoye and I are no longer graduate students; we are now colleagues.

Chris and I, in addition to spending hours together in classes every week during the first year, spent most of the summer of 2001 in Ann Arbor, Michigan, working at the University of Michigan's English Language Institute. Chris has been an invaluable aide during my last year at Purdue. She answered every one of my emails – and I had lots of them – about the job search and about finishing the dissertation.

The three of us are all now leaving the nest: Chris has already moved to Chicago, Xiaoye is moving to Pennsylvania, and I expect to move somewhere else. It is both odd and encouraging to think that we are now all fully-fledged professionals trusted with new responsibilities.

A number of people on the faculty at Purdue who were not members of my dissertation committee had some positive influence in the writing of this thesis. The work I did with Jens Palsberg, before he moved to UCLA, introduced me to a

group of writers I would otherwise have never considered writing about. Despite the devotion he has to research in virtually every moment of his waking life, I was encouraged to see that Jens also took teaching very seriously. The paper that we wrote together that was later published in Communications of the ACM taught us both how valuable it can be to reflect on one's teaching in a public forum.

Linda Bergmann has also been an encouraging influence during my time at Purdue. We did not talk often, but we had several conversations where she had valuable advice for me. When I drove her back from Bloomington to West Lafayette after a conference, we shared our stories of significant events that were part of our professional development. In the fall of 2003, we only talked for ten minutes, but during those ten minutes she gave me very focused and detailed advice about a conference abstract that I was working on. On that day she told me that she has always respected my work; I got an enormous confidence booster that day.

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Bud Weiser has been an encouraging influence, virtually since the first day I walked on to Purdue's campus. I was thoroughly impressed by his practicum in the teaching of college composition that he taught my first year. Before I started the class I was not sure what to expect and had my doubts; but throughout the year Bud had us focus on practical matters and made every minute of class time valuable and productive. He was always available whenever I had a question about any aspect of teaching. Bud has managed to continue this availability even as he has become department head. I admire his willingness to share his time and am truly inspired by the way he can get back to work immediately after he's

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Myrdene Anderson has shared her considerable knowledge of ethnography with me. Myrdene has devoted her life to books, articles, and bibliographies. Certainly her office and house, filled, as they are, to the brim with books and papers seemed a little off-putting at first. But Myrdene is truly devoted both to scholarship and to helping every nascent scholar she comes in contact with. She always made time to promptly answer every email I sent her; and every time I came in to her office she had more suggestions for books and articles to read, theoretical approaches that might prove useful, and suggestions for eliciting and sorting data.

After the briefest glimpse at something Pat Sullivan has an amazing ability to be able to tell what the main issues are and how the task at hand ought to be approached. I saw her use this ability several times when I had questions about my dissertation and about my academic job search. Despite the disorganized appearance she tries to adopt, I have found Pat to be a person with an incredible memory, an eye for detail, and a discerning and facile mind.

Finally, my three participants – Adam, Daniel, and Hiroshi – were extremely co-operative during the course of my data collection. It was their willingness to share their stories and their literacy experiences that gave me excellent material to write about.

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ABSTRACT

Baxter, Scott Joseph, PhD, Purdue University, May 2005, *Hacker Writers: A Study of the Literacy Practices of Selected Writers in a Computer Science Research Laboratory*, Major Professor: Tony Silva

This dissertation is a study of three second language writers who were all doctoral students in a computer science research laboratory. More specifically, the dissertation describes the writing experiences of each of the writers and, equally important, the attitudes each of those writers had toward their writing experiences. The first chapter reviews the available literature on the affective dimension of both first and second language writing as well as on the affective dimension of writing in computer science; it also outlines the research questions that guide the study. The second chapter provides a context for the study by describing the site and describing the methods of data collection and analysis. Chapters three through five focus on the three participants in the study: Hiroshi, Daniel, and Adam. Chapter three describes Hiroshi's experiences learning English, how he chose his field of study, how he learned to write, and his attitudes toward reading. Chapter four describes Daniel's experiences learning English, how he gained confidence as a writer and researcher, where his

research interests came from, his experiences with reviewers, and his attitudes toward his first language. Chapter five describes how Adam found his field of study, his significant teacher and writing experiences, his internship experiences, his attitudes toward reading, and his attitudes toward writing. Each of these chapters ends with a series of reflections in order to articulate the relationship between the subjects and the research, to show the researcher's biases, and to suggest that the stories of Hiroshi, Daniel, and Adam are not unique to a small group of second language writers. The dissertation ends by returning to the research questions raised in the first chapter, outlining implications for theory, research, and teaching, and suggesting promising directions for future research.

CHAPTER 1

LITERATURE REVIEW AND RESEARCH QUESTIONS

1.1 Overview of the Dissertation

This dissertation is a study of the literacy practices of three second language writers, Adam, Daniel, and Hiroshi, who were enrolled in a PhD program in computer science (CS) at Purdue University. The focus of the study is primarily on the writing that those students did and how they felt about it. However, I use the term literacy practices because writing does not occur in a vacuum; other practices, such as reading and technology, especially computers, were an important part of the writing that these students did.

The title of this dissertation, *Hacker Writers*, was chosen because this seemed to accurately and tersely describe the study. A hacker, at least according to the members of the ABC research laboratory, the site where these writers worked, is a person who writes computer programs. This comes from the verb *to hack*, which is writing a temporary solution to a programming problem and has negative connotations. Curiously, when describing the work that they do, these writers often use the term *hacking* to refer to writing computer programs – and this term is neutral with no pejorative meanings associated with it

Despite the neutral or even positive connotations of the term, I am aware that the term hacker is frequently used pejoratively to refer to a person who uses his or her knowledge of computers to circumvent security systems and steal or manipulate the information found on those computers. This definition seems to be the one most commonly used in the popular media (e.g, Levy, 1985).

However, I found, throughout my research, that people I talked with in Purdue's CS department consistently used the term *hacker* or *hacker culture* to describe the community they felt they belonged to. Because it was the term the members of this community preferred, I decided to use it in the title of this dissertation.

The dissertation is organized as follows. This chapter surveys the literature relevant to the study. In the second chapter, I provide a context for the study and outline the methodology used. The literacy experiences of Hiroshi, Daniel, and Adam are the subjects of chapters three four, and five. Finally, I conclude with a discussion of what the literacy experiences of Hiroshi, Daniel, and Adam have to contribute to L2 writing scholarship in chapter six.

Each of the central chapters (2-5) ends with reflections on how the material presented in the chapter relates to me as a writer and researcher. I offer these reflections as a way of showing that I have been part of the study and as a way of showing how my own literacy experiences relate to the ones I present in the main part of the chapters. However, I certainly do not view this dissertation as an example of autoethnography (Ellis, 2004) in which the line between fiction and

ethnographic data is blurred¹. In this dissertation, the experiences of Hiroshi, Daniel, and Adam are foregrounded, while my own experiences are given considerably less space and emphasis.

1.2 Second Language Writing and Attitudes and Characteristics of Second Language Writers

Twenty years ago, Lauer (1984) argued that the field of composition studies is uniquely situated to be able to study literacy in all of its forms and appearances. One of the forms and appearances that composition studies has included, with a body of literature that has been growing rapidly, especially since 1990, is second language (L2) writing. The field has its own journal (*Journal of Second Language Writing*), at least two book-length annotated bibliographies (Silva, Brice, & Reichelt, 1999; Tannacito, 1995), a biennial international

¹ At this point, it would perhaps be useful to offer a definition. Ellis defines autoethnography as follows:

Autoethnography refers to writing about the personal and its relationship to culture. It is an autobiographical genre of writing and research that displays multiple layers of consciousness. ... Usually written in first-person voice, autoethnographic texts appear in a variety of forms -- short stories, poetry, fiction, novels, photographic essays, scripts, personal essays, journals, fragmented and layered writing, and social science prose. They showcase concrete action, dialogue, emotion, embodiment, spirituality, and self-consciousness. These features appear as relational and institutional stories affected by history and social structure, which themselves are dialectically revealed through actions, feelings, thoughts, and language (Ellis, 2004, pgs. 37-38).

While some applaud autoethnography for its foregrounding of personal experience and its emphasis on reflexivity, others who think of ethnography as being composed of art, craft, and science view it as anathema because it overemphasizes the art at the expense of craft and science.

conference (Symposium on Second Language Writing), and second language writing presentations are regularly on the program at the largest writing conference in North America (Conference on College and Communication) and at the largest second language studies conferences as well (American Association of Applied Linguistics, International Association of Applied Linguistics, Teachers of English to Speakers of Other Languages). Further, because of the growing number of international students studying in English speaking countries such as Canada, New Zealand, the United Kingdom, and the United States, as well as because of the continued number of professionals in non-English speaking countries who need to write in English, second language writing specialists have been very successful in finding jobs in countries around the world².

The study of L2 writing has focused on several different areas, including L2 writers' composing processes (Silva, 1993; Silva, Brice, Kapper, Matsuda, & Reichelt, 2001), assessment and evaluation of L2 writing (Hamp-Lyons, 2001), features and characteristics of L2 writers' texts (Connor, 1996; Kaplan, 1966), readers' responses to L2 writing (Ferris, 2003), cultural, historical, social, political,

² My optimistic description is not universally accepted. Atkinson, for instance, thinks that the field is disappearing because of the small number of second language writing specialists in institutions that grant doctoral degrees (Santos, Atkinson, Erickson, Matsuda, & Silva, 2000). He argues that, because there are a small number of universities with L2 writing specialists, the number of emerging L2 writing scholars will diminish in the future because there are not enough people working at research universities to train them. However, since that article was written, the number of second language writing specialists employed in universities that grant doctorates has increased. Georgia State University has recently begun a PhD program in applied linguistics, and their faculty includes several second language writing specialists (Diane Belcher, Joan Carson, and Sara Weigle); Paul Kei Matsuda, another second language writing specialist, now directs dissertations at the University of New Hampshire; finally, Dwight Atkinson now has doctoral students of his own at Temple University's campus in Tokyo, Japan.

and situational contexts for L2 writing (Matsuda, 2003; Santos et al., 2000; Severino, 2001), as well as personal characteristics and attitudes of L2 writers. It is this last area that is most relevant to this dissertation.

In order for researchers to be able to describe the personal characteristics and attitudes of L2 writers, qualitative methods in which the researcher spends a good deal of time interviewing the writers would probably one of the best ways to do such research. However, as Kapper noted, the majority of the studies published in the *Journal of Second Language Writing*, the primary outlet for L2 writing research, have used quantitative methods (Kapper, 2002). In fact, Ilona Leki, one of the leading L2 writing researchers, had the following to say about her frustrations in trying to find more ethnographic approaches to the study of L2 writing:

I hoped to find research studies that used in-depth case study, longitudinal, multiple interview, and/or observational methods focused on L2 students with names who would tell us in their own voices what happened to them for better or worse in L2 writing classes. ... I was struck by the fact that so many of these studies talked about the students but never gave any evidence that the researchers spent any time talking to the students, never asked them one on one what all this ... meant to them. No doubt those conversations did take place, but for some reason they did not end up in the public record in any detail (Leki, 2001).

However, despite the fact that qualitative studies which focus on the characteristics and attitudes of L2 writers has not been the dominant method of inquiry within the field of L2 writing research, there have been a number of useful studies. The next section describes the relevant research on the topic.

Each of the studies in this section has been chosen because the researcher demonstrated that he or she had spent time with the student seeing not only what sort of writing the student did but also, how the students felt about that writing. I would also like to note that rather than trying to tersely summarize a large number of studies, I have chosen to have somewhat more in-depth summaries of a smaller number of studies.

The rest of this chapter is organized as follows. I begin, in section 1.3, by describing research on undergraduate writers, first with research on L1 writers, and then, with research on L2 writers. After that, I review work that focused on graduate students and junior faculty in section 1.4. Finally, the literature review ends with a description of L2 literacy autobiographies in section 1.5. I chose to divide the literature on the affective dimension of L2 writing in this way because each of these groups of writers is quite different. As the chapter progresses, each of the sections becomes increasingly more similar to the study I present in chapters two through five. This review of the literature suggests the research questions that I conclude the chapter in section 1.5.

1.3 Studies of Undergraduate Writers

There have been several studies of undergraduate writers, both first language (L1) writers and L2 writers. In a number of ways, the acquisition of academic literacy is similar for both these groups of writers. Both groups need to understand what the writing assignments they are asked to do require of them. In addition, both groups, as will be seen here, often take a considerable amount of time to learn the specialized discourses required in their university courses. I begin with studies of L1 writers.

1.3.1 L1 Writers

This section summarizes what has been learned by the researchers who studied Dave; Nick and Anna; Linda, Joan, Ricardo, Chandra, Delores, Audrey, Donald, Carl, and Jacob; and Rachel. I have purposely chosen to title each section after the names of the writers in order to point out that each of these studies represents real people with real feelings and real emotions. Case studies of writers, due to the nature of the methodology that is used, foreground the experiences and attitudes of those writers; in other words, the feelings that those writers had are as important a part of the results as is the description of what types of writing assignments they wrote and how the teacher judged the success of that writing.

1.3.1.1 Dave

McCarthy spent three semesters studying the writing that Dave, an American undergraduate, was asked to do in his courses over a three semester

period and how he coped with those assignments (McCarthy, 1987). What is remarkable about what McCarthy found is that despite similarities between the assignments in all three classes – all of them involved summarizing, analyzing, and organizing information – Dave thought that the writing in each class was different and seemed not to be developing any skills to help him transfer what he learned from a writing assignment in one class to another. In his words his job was to “figure out what your teacher wants... and then... give it to them” (McCarthy 1987 p 233). Apparently, this process of discovering what his teacher wanted, at least at that stage in his development as a writer, had to begin again each time he was given another writing assignment.

In addition to failing to develop any transferable skills that he could use in his different assignments, Dave saw himself as a stranger in a strange land each semester that he had to take another class. He felt that his identity needed to change in each of those situations. What is most striking about Dave’s lack of comfort as he moved from class to class in his undergraduate career is that Dave was so mainstream. He had SAT scores that were very close to the median for his institution and had a very similar background to the other undergraduates in his institution. If Dave felt like a stranger each time he started in a new class, then it certainly would not be a surprise that those who speak a different L1 or are from a background different from the majority of students would probably feel even more like a stranger.

1.3.1.2 Nick and Anna

The second study I would like to discuss is Elizabeth Chiseri-Strater's case study of Anna and Nick (Chiseri-Strater, 1991). The author followed Nick and Anna, two native-speaking undergraduates, for two semesters. Both of the students had very different experiences trying to succeed in the writing assignments they had in those two semesters.

Both Anna and Nick were very successful in a prose writing course that they took because the professor seemed to be genuinely concerned that students be interested in the material. She engaged the students through group work, journals, and individual conferences. In contrast to the success and enjoyment that they experienced in prose writing, both Anna and Nick had trouble writing in other classes.

Nick, initially, had trouble writing the assignments in his political science class because he found the formal style that he was expected to write in to clash with the identity he had been developing as a writer. But, when Chiseri-Strater suggested to the professor that Nick be encouraged to use alternate forms of writing, he both began to enjoy the course more and to increase the amount he learned.

Anna had trouble completing the writing assignments in her art history class because she found the lectures to be too intellectually dense and dry. Anna was interested in the subject but thought the instructor did not show enough enthusiasm about it. According to Chiseri-Strater, there was a "tension in her

academic life between fields that require distance, detachment, and objectivity and those that welcome intimacy, engagement and subjectivity” (Chiseri-Strater 1991, p 56). Anna, clearly, was not convinced that her art history professor was passionate about the subject.

The concept of identity played a key role in the success of Anna and Nick’s writing assignments. When they were able to write about things they were personally interested in or in a style that they felt was a personal style, they did well; but when they were not able to connect the course to their own interests or were asked to write in a style they considered unnecessarily formal, they had trouble.

1.3.1.3 Linda, Joan, Ricardo, Chandra, Delores, Audrey, Donald, Carl, Jacob

Sternglass followed nine students – one Asian, one white (her term), and the rest African-American and Latino – over six years (Sternglass, 1997). The length of time that Sternglass spent learning about these students makes her study one of the few truly longitudinal studies of undergraduate writers. One of her key findings in the study was that the students’ personal lives – things like family, work obligations, gender, and their sense of personal identity – were strong influences on their writing. In particular, their ability to combine their personal interests and knowledge with their writing assignments was an important element in their success. Once they were able to do this they were able to assume greater control over their writing and, for this reason, do better on the writing assignments they needed to complete. Another factor Sternglass

identified in their success was tied to their need to engage with competent and enthusiastic teachers who cared about their individual success.

1.3.1.4 Rachel

Ivanic (1998) interviewed eight mature (over the age of 25) undergraduate students at a British university over the choices they made in an important essay, a “family case study”, they wrote in a social work program. Much of the book focuses on Rachel and the choices she made to construct her identity in her writing, or the discursual construction of identity, as Ivanic puts it.

Rachel struggled, in writing the essay, to bring together the identities of the discipline, things she had learned in her courses, and her own personal identity. Ultimately, according to Ivanic, Rachel was not able to successfully combine these identities in her essay. As Ivanic writes:

Rachel was caught in a web of sincerity and deception as she attempted to take on social roles and to portray qualities which were valued by her different readers, and, whenever possible, to be true to herself. This process was complicated by the fact that Rachel was not a very adept writer: she had difficulty in playing these games and, sadly, even more difficulty in challenging the conventions and presenting herself as she ideally would like to appear (p. 168).

1.3.1.5 Summing Up

In four out of the five studies presented here, the issue of identity and a connection between what the students were asked to write about and what they

were interested in were important factors in the success or lack of success with their writing assignments. For Nick and Anna, this sense of identity was closely connected with being encouraged to write in a style they were comfortable with. By contrast, Rachel had trouble with her assignment not only because she had writing difficulties, but also because she had a hard time integrating the things she learned in classes, her concept of the discipline of social work, and her own sense of identity.

1.3.2 L2 Writers

It is difficult for any undergraduate writer to learn the specialized discourses of a particular discipline, or, more often, at least in American undergraduate settings, a series of discourses, because students often have to write in a range of courses, both within and beyond their majors. The specifics of how one learns those discourses can become considerably more complicated when a student has an L1 and culture that is different from the L2 and its culture, as the experiences of Luc, Yuko, and Yang demonstrate in the next sections.

1.3.2.1 Luc

Johns (2001) was interested in seeing why it is that some of the L2 students at her institution were doing well in their non-writing courses but were having considerable difficulties passing their language competency exams, something that seemed to happen far less often with the university's L1 writers. She focused on Luc, a undergraduate biochemistry major from Vietnam. Luc had

come to the United States with his family five years earlier, had graduated from an American high school, and was now in his third year of studies.

Luc was doing well in his science classes in his major and in his other classes, earning an A- in his major and a B+ overall. However, he was having trouble passing the English language competency essay exam his university required him to pass; he had failed the exam twice and had also failed practice exams given by the university's test office twice.

Johns spent 14 weeks interviewing Luc and analyzing the writing he did in his science classes, the writing he did in her writing class, and the competency exams he had previously taken. She did this in order to try to understand why his writing was so successful in his science classes – in an appendix (p. 133) Johns reprints an essay exam from a biology class that he was given an A on – but had such difficulty with the English competency exam. Johns suggests four reasons for Luc's difficulties:

1. He found the writing prompt opaque and was uncertain how to respond to it. He was asked to write on the "crisis in education' in the United States. However, Luc did not think there was a crisis and did not understand how to argue for something he did not agree with. In addition, he was not required to argue for his opinions in any of the essays he wrote for his science classes and was uncertain how to structure such an essay.
2. He was uncertain what the audience expected a good answer to look like. By contrast, he felt considerably more confidence about the essays he

was asked to write in his science classes, largely because he knew the teacher. In Luc's words:

When I write in biology or any subject, I know the instructor. But one problem with the competency exam is that I don't know who is going to read and what that person is like. Lots of "education" stuff. Well, I may have some examples and they're OK for the Vietnamese people, but for American people, I don't know if my examples are too good, so I am worried (p. 128).

3. He found the topic to be dull and uninteresting. This attitude most likely negatively affected his approach to writing the essay in a timed environment.
4. Finally, he had used memorization and practicing successfully in preparing for his science exams. However, since he could not predict what the topic would be for the English competency exam, there was little, if anything he could memorize, and practice seemed futile to him.

Johns ends her essay by raising a number of questions about what the best ways are to assess student writing, whether such examinations are inherently biased against L2 writers, as well as other issues. Among other issues, she notes that research has indicated that faculty outside of the English department, who typically score such essays, do not always have the same opinions of what good writing is as faculty in other disciplines do (Bridgeman & Carlson, 1983; Faigley & Hansen, 1985).

1.3.2.2 Yuko

Yuko was a Japanese woman who Spack (1997) followed in nine different classes over three years. Yuko, despite high test scores, had begged to be admitted to Spack's ESL class because she felt that the reticence which had worked well for her in school in Japan was beginning to negatively affect her in her courses in the United States.

Yuko had many problems with the reading and writing assignments until she made two discoveries, one about reading and one about writing. As far as reading was concerned she had previously assumed that:

- good students grasp the meaning of something the first time they read it.
- good students understand every word of every reading assignment.
- good students read everything assigned.
- good students read everything on schedule (Spack 1997 p 45).

Once she learned that these were unrealistic assumptions that most successful students at American universities did not follow in practice, Yuko adjusted her behavior and became much better at keeping up with the reading assignments in her courses.

Yuko also had to adjust her expectations of what was expected of her as a writer. She had a great deal of trouble completing her writing assignments and had dropped two courses because she thought she would be unable to complete the assigned essays. Yuko had assumed that writers in an American academic context need to be original; but she later realized that much of the writing that she

did called for her to demonstrate her familiarity with the assigned reading. It was only after the end of her second year that Yuko realized that writers use sources frequently in academic writing. She came to understand that critical thinking involved demonstrating that she understood the published sources.

By the end of the study Yuko realized that she had to create a new identity for herself as a writer. She could no longer rely on the rote memorization that had served her well in Japan. And she also found that she had to reject her notion that American writers must always be original. Yuko created a new identity that was based on what she had learned in Japan, what she had learned in America, and her own interpretation of the events she had experienced.

1.3.2.3 Yang

Leki (2003b), as part of a larger study of four undergraduate L2 writers, studied Yang, a Chinese student in an American university nursing program. Yang, a former doctor from the People's Republic of China, was required to write a series of specialized documents called Nursing Care Plans (NCPs) during her final semester of studies.

These NCPs took students hours to write, and Yang usually stayed up all night, after a full day of nursing studies, to complete hers. Yang's L1 peers soon learned how to write these NCPs within an hour or two, but Yang was never able to write them any quicker. Yang was never able to use her training as a doctor to reduce the amount of time she spent writing these documents; the amount of time she spent writing them was largely because of spending hours trying to

reduce the grammatical errors – Yang was explicitly told, after submitting an NCP with too many surface-level errors, that she was unlikely to pass the course and graduate.

Leki also notes two additional difficulties which added to Yang's difficulties. First, Yang had become pregnant prior to the start of the semester, at the age of 36, and the pregnancy-related fatigue probably made her all-night writing sessions and long hours spent working at the hospital even more difficult than they would have been for a younger student who was not pregnant. Second, Yang had difficulty finding any resources to help her with her language difficulties. She had serious trouble understanding the language her patients used, and, more significantly, had trouble understanding culturally appropriate ways of interacting with patients. For example, what is a nurse supposed to do when a patient is not following medical advice? Yang found it both difficult to know the culturally appropriate behavior in such situations nor did she know how to write about these situations in her NCPs

In the end, Yang graduated and gave birth to a healthy baby boy. But Leki, as she has argued elsewhere (2003a), seriously questions whether the amount of stress related to writing Yang experienced was really necessary. The NCPs that Yang was asked to write were far more detailed than the ones nurses outside of the contexts of the university write in only a few minutes. Leki also notes the following:

Asked whether the writing assignments in their courses were similar to writing the graduates would encounter in their professional lives, faculty generally confirmed that these assignments were not particularly similar (p. 87).

1.3.2.4 Summing Up

Writing in an L2 considerably complicates the picture of what sort of writing difficulties undergraduate students in the English speaking world have. Each of these writers had cultural expectations that turned out to be unhelpful. In Luc's case, there was a difference between what was expected of a science essay versus an English essay as well as cultural differences between the Vietnamese and American educational systems. For Yuko, there was a mismatch between what she thought was expected of her as a reader and as a writer and what turned out to be more useful strategies for approaching reading and writing tasks. Finally, Yang, had trouble understanding her patients as well as trouble understanding culturally appropriate ways of responding to them.

1.4 Studies of Graduate Writers

As can be expected, graduate students are in very different situations as writers than undergraduate students are. They are much more familiar with the discipline that they are studying, especially if they are PhD students, than undergraduates usually are. In addition, they often do more writing, particularly near the end of their studies as they complete exams, try to publish papers, write

dissertations, and compose various documents needed to find a teaching and/or research position once they graduate.

The dissertation is, for most students, the most significant document that they have written in their lives up to that point because of its length, and the amount time needed to research and write it, as well as because of the high expectations that graduate faculty have of it. There have been some studies of different aspects of dissertations including textual studies of dissertations (Bunton, 1999a, 1999b; Dudley-Evans, 1984; Hopkins & Dudley-Evans, 1988), surveys of faculty and students about dissertation writing (Bunton, 1999b; Casanave & Hubbard, 1992; Dong, 1998) as well as descriptions of pedagogical programs (Allison, Cooley, Lewkowicz, & Nunan, 1998; Paltridge, 1997), and at least one textbook written specifically for L2 dissertation writers (Swales & Feak, 2000). However, there have been few ethnographic case studies of graduate student writers, whether they are L1 or L2 writers. The rest of this section summarizes the studies I have been able to find.

1.4.1 Boys in White

The first study I would like to describe is the book *Boys in White*, a study of the characteristics and attitudes of students in medical school (Becker, Geer, Everett C. Hughes, & Strauss, 1961). Even though the research for the study was done more than forty years ago, the book is a classic that remains in print and is still cited, although more often in fields outside of composition studies.

Writing is not the subject of the book; instead, the subject is of how the students manage to cope with the large amounts of work they need to complete in their courses. The authors demonstrate, similar to the work of Lave and Wenger (1991), that much of what the students learn about becoming doctors, or even about becoming medical students, is learned by participating in the practices of those already established in the field.

Among other dilemmas that the students faced is the issue of picking a specialty. At the beginning of their studies, the students are not even sure how to define what a successful physician is or even how to define what medicine is (pp. 71-72). As can be expected, these medical students learned, as they participated in lectures, laboratories, and examinations what medicine consists of and how to articulate the differences between the various medical specialties.

However, the single greatest difficulty the students faced was in deciding how to parse the time they had available for studying. In particular, they felt a tremendous tension between learning what they thought doctors ought to learn in order to become good doctors and learning what they expected would be on their examinations. Becker et al summarize the way the students reconciled these two perspectives as follows:

1. We select the important things to study by finding out what the faculty wants us to know. This is the way to pass examinations and get through school.
2. We continue to study hard and in the most economical and efficient ways. We try to find out, in every way we can short of cheating, what questions

will be on the examinations and how they should be answered and share this information with other members of the class.

In developing the perspective, students find not only a solution to the overload problem that reduces strain and tension for the rest of the year, but also a co-operative way of behaving that draws the class together in the effort to predict and fulfill faculty wants. The level of effort remains high. Most students feel that in directing their effort toward learning what the faculty wants they are also learning medicine, but they are not without resentment and a feeling that they have somehow been forced to give up the ideal of learning for themselves in order to pass the examinations (p. 163).

1.4.2 Nate

Nate, whose identity was later revealed to be Ackerman, was a graduate student in a Ph.D. program in rhetoric at Carnegie Mellon University (Berkenkotter, Huckin, & Ackerman, 1988, 1991) that Berkenkotter and Huckin studied in order to better understand the enculturation process that graduate students go through as they learn the appropriate ways and thinking and behaving in their discipline.

Most of the research that was done was textual analysis of five papers that that Nate wrote for one professor during his first year of studies. Berkenkotter and Huckin report that Nate used a number of off-register phrases in his writing, inappropriately mixed formal and informal registers, and used "I"

more often than did published scholars in the field. However, by the end of the first year, the authors note that Nate had shown considerable improvement:

By the end of his first year in the rhetoric program, Nate had gained increasing control over the language in his texts. His ability to manage information within prescribed conditions is evident in his papers from this period. He had also learned to better accommodate his register to the rhetorical context in which he wrote. But he had learned something else that was to serve him as a writer: he had become familiar with the central concerns and disciplinary issues with which rhetoric faculty were concerned (Berkenkotter et al., 1988).

In a later essay (Ackerman, 1995), Nate/Ackerman says that he does not deny that the textual analysis of his writing showed that he had made transitions in his thinking and his writing. However, he cautions that making an “interpretive leap from textual analysis to intellectual identity” is not an unproblematic one (p. 145). What is missing in the research on Nate is more exploration of how he developed his identity as both an encultured member of the discipline as well as his identity as an original thinker and writer. As I will show, later studies began to explore the importance of identity formation as an element of academic enculturation.

1.4.3 Moira

Prior’s study of Moira, a doctoral student in sociology, offers an approach very different than the one that was used to understand Nate’s process of

enculturation into a graduate program (Prior, 1998). He presents academic writing as an exceedingly complex enterprise situated in a social, cultural, historical, political, and linguistic context. However, his multiple methodologies and complex descriptions of the textual and non-textual elements of Moira's writing certainly require effort on the part of the reader.

Moira was in her fourth year of her doctoral program, and much of Prior's study focuses on her completion of two documents: a paper for a graduate student conference and a paper submitted for her Ph.D. qualifying examination. Prior notes that Moira received extensive commentary on her drafts of these works from her major professor, Professor West. Although Moira did not accept all of Professor West's suggestions, she incorporated many of them. In fact, Prior shows, through close analysis of several drafts of the documents and comments on them from Professor West, that, sometimes, comments on one section of a document inspired changes in another place where there were no written comments.

Through this process of writing, revision, and Professor West's comments on the document, Moira began to internalize the ways of writing considered appropriate for researchers in her area of sociology. Although it appears that Moira did not feel that she had fully accepted her emergent identity as a researcher and writer, she told Prior that, some months after she had completed one of the documents, she asked herself, "Did I write this? That doesn't sound like me" (p. 221).

1.4.4 Li, Ko, and Keoungmee

Belcher's (1994) article is a case study of three non-native graduate students working on their dissertations, the difficulties they had while researching and writing them, and their relationships with their advisors. All of these students had considerable trouble writing their dissertation and were in Belcher's dissertation writing course for non-native speakers of English. Belcher began her study by interviewing the students and their advisors at the mid-point of the semester. One year later, curious to see what had happened to the students, she looked up the students and their advisors and interviewed them.

The first of the students, Li, a Chinese literature student, filled his texts with so many references and allusions that it was difficult to tell which ideas were his original ideas and which were not – an approach consistent with traditional “old style” Chinese scholars. His advisor was highly critical of this approach and filled Li's dissertation drafts with red ink in an effort to force him to limit his references to only those which were directly relevant to his research and encourage him to model his thinking in a more Western manner. Li interpreted these comments as evidence that his advisor was “not really Chinese anymore” and did not take them as evidence of encouragement (Belcher, 1994 p. 27). A year later Li had only written one chapter of the dissertation which was later filled with red ink by his advisor. Frustrated, he had dropped out and taken a job far from academia.

The second student in Belcher's study was Ko, an applied mathematician. According to his advisor, Ko's main problem was a refusal to write multiple drafts and an unwillingness to make his writing lucid to the engineers it was intended for; they wanted it to be more concise and more comprehensible. Ko's advisor thought that he was too eager to show what a brilliant mathematician he was and thought that the intricacies of the derivations in his equations would be better suited to endnotes – where the engineers could ignore them if they wanted to. Ko, by contrast, thought that the engineers, and even his advisor, did not understand the intricacies of his mathematical reasoning. In his thinking the fault lay with his audience, rather than with him.

A year later Ko had finished his dissertation and taken a position as a post-doctoral researcher with his advisor. While his advisor told Belcher that he was happy to employ his former student, he did not envision a bright future for him because of his unwillingness to accept engineers as being as brilliant as he was. His advisor also told Belcher that he thought that Ko could, at best, hope to work at a third-rate school despite the fact that he had the mathematical abilities to work at a second-rate school.

The third student in Belcher's study, Keoungmee, a human nutrition student, was the student with the weakest linguistic and grammatical skills of the three students. She was having trouble producing a literature review when Belcher met her, not because of writing difficulties, but because she was cooking

for and feeding her research subjects during the day and testing their blood for cholesterol levels at night.

A year later, Belcher found that Keoungmee, despite some serious difficulties, had finished her dissertation and accepted a postdoctoral position working with her advisor who was very optimistic about her future. One of the biggest problems that Keoungmee had faced while writing and researching the dissertation was the fact that one of her committee members was, in her advisor's opinion, excessively critical of her writing and research. This faculty member insisted that Keoungmee replicate an experiment which added considerably to the time it took her to complete the dissertation. During the whole process the advisor steadfastly stood by her student and, once the dissertation was completed, encouraged her to present her findings at a national conference and to submit them to highly respected journals. Belcher suggests that Keoungmee was, in part, more successful than the other students because of her non-hierarchical relationship with her advisor. She further speculates that the fact that the advisor and the student were both females may have played a role in downplaying the hierarchy between them.

1.4.5 Oliver

Flowerdew, as part of a larger project to understand how L2 English writers in Hong Kong are making the transition from being a British colony to a part of the People's Republic of China (Flowerdew, 1999a, 1999b), studied the

process one Hong Kong scholar went through in writing and publishing a paper in an internationally recognized scholarly journal (Flowerdew, 2000).

Oliver had recently taken a position at a Hong Kong University while he was finishing his dissertation to complete his Ph.D. in communications from a university in the United States. He was under tremendous pressure, not only to finish and defend his dissertation, but also to have papers accepted in international journals – which meant English language journals rather than Chinese language ones.

Flowerdew traced the twenty month process of submission, multiple revisions, and correspondence with the editors of the journal that Oliver went through to publish his paper. Oliver had done the research, which took four years, as part of the process of completing his dissertation. After submitting to two different journals – one rejected it and the other suggested it be submitted elsewhere – Oliver received a positive review and encouragement to resubmit the paper for an additional round of reviewing. Oliver did so, and he then spent the next eight months working with a local editor who “did an aggressive job, cutting the paper from 43 pages to 29. Entire paragraphs were removed, and virtually every sentence was rewritten” (p. 139).

Throughout this process, the editor suggested several times that Oliver might want to consider submitting to another journal, but Oliver persisted and, eventually, did see the paper appear in the journal. Much of Flowerdew’s analysis centers around the correspondence between the editor, the local editor, and

Oliver as well as on the nature of the revisions. However, little is said about how either Flowerdew, as a researcher and writer, or Oliver felt about the whole process.

1.4.6 Pablo

Scott (2000) followed Pablo, a L2 dissertation writer from Spain, enrolled in an agricultural economics graduate program at Purdue University. Pablo chose to write his dissertation on the wine industry. Scott's dissertation follows Pablo through all the phases of his dissertation, from selecting the topic through the oral defense of the dissertation.

By reading Scott's dissertation, I learned a great deal about the working relationship between Pablo and Dr. Andrews, his dissertation committee chair. One of the surprising things that happened during the writing process occurred after Pablo submitted his first draft of the initial four chapters – Pablo had, apparently waited until he had written that much to submit chapter drafts. After reading the chapters, Dr. Andrews told Pablo that there were serious flaws with his model, and he needed to start his study over from scratch (pgs. 147-148). Pablo did, eventually, finish the study and successfully defend it.

I was, in a number of ways, impressed with the research that Scott had done. She put considerable effort into taking work like that of Belcher (1994) and investigating what the specific set of experiences are that lead to disciplinary enculturation in writing. However, I was surprised to see so little about Pablo's background before he began his graduate studies. I also wanted to know more

about how Scott, as a dissertation writer herself at the same time she was studying Pablo, felt. Among other things, I wanted to know in what ways her own experiences as a L2 writer, as a native speaker of Spanish, and as a doctoral student in an English department were similar to and different than Pablo's experiences. It was this curiosity, in part, that encouraged me to include my own feelings and experiences as a researcher, as a writer, and as a L2 language learner in this dissertation.

1.4.6 Virginia

Certainly not all graduate students are like Pablo; some leave their program before graduating. Casanave's (Casanave, 1992, 1995, 2002) study³ examines the complex series of factors that led, Virginia, a Hispanic graduate student, to leave her doctoral program in sociology.

One of the reasons that Virginia left her program was because of the language and vocabulary of sociological theory she was expected to learn and use as she began her studies. Casanave gives the following examples:

Domain (of a theory), basic assumption (underived premise), scope (of a theory), unsolved problem, theoretical research program (TRP), initial theoretical formulation (ITF), current theoretical formulation (CTF), elaboration of a theory, degeneration (of a theory), proliferants, competitors, structure (of a theory), metatheoretical presuppositions, logical implications, empirical implications, analytical problem, empirical

³ The story of Virginia was first published in Casanave (1992); the later article (1995) and section from her book *Writing Games* (2002) present different aspects of Virginia's writing experiences.

inquiry, trivial question or problem, a “good question”, empirical studies, association between variables, argument, observation statement, knowledge claim, proposition, scope statement/condition, conceptual definition, “system” of concepts, operationalization, indicator, explanatory generality, empirical implication/consequence, heuristic explanation, hypothesis, competing explanation, logical analysis, empirical test, intersubjective understanding (Casanave, 2002, pp. 156-157).

These terms, and the language she was being pushed to use in her writing assignments were very different from the Spanish and English that she had been using up to that point in her life. Virginia ultimately questioned whether this specialized vocabulary and terminology was alienating her from her family and the Hispanic groups she wanted to work with which was her original impetus for entering the program.

Casanave summarizes Virginia’s attitude toward the program and the language she was being pushed to understand, use, and integrate into her way of thinking about the world as follows:

...by the end of the academic year, Virginia recognized the extent to which the theoretical sociologists in the program used language that was different from the language she used in everyday life, including their use of “common” terms in technical or quasi-technical ways. Nevertheless, in her own writing she continued searching for a way to express her new knowledge in language that was accessible to her friends and family,

although she found this increasingly difficult to do. ...As a resource for communicating her new knowledge to her home community, Virginia's "everyday" language had become ineffective. Hence, although Virginia began developing a shorthand for communicating with a small group of sociologists, the sociology program missed an opportunity to help Virginia eventually become a pipeline for communicating its knowledge to the broader community of sociologists and to add her perspective to that knowledge. The knowledge produced by this particular subgroup within the program would probably remain relevant only to a fairly small circle of specialists (Casanave, 2002, p. 161).

1.4.7 Summing Up

These studies of graduate writers show both a changing set of research methods and approaches to understanding graduate writers as well as students in very different situations. In regards to approaches and methods, the studies of Nate and Oliver foreground textual analysis as ways of better understanding the writers; the studies of Li, Ko, and Keoungmee, of Virginia, and of Pablo emphasize qualitative methods; and Prior's work with Moira makes extensive use of both textual analysis and interview data. Each of the studies also points to the importance of local contexts in the development of each of the writers. In most cases, the most important context was the relationship between the student and the advisor, although Flowerdew's study of Oliver examines the relationship between the student and journal editors.

1.5 Literacy Autobiographies

Literacy autobiographies are a relatively recent approach to the study of L2 writing experiences in which either, in the case of Villanueva, a writer publishes his own account of his development as a writer, or, in the case of Belcher and Connor or Silva et al, the authors collect the writer's stories and present them verbatim. They are, in some ways, similar to other books which focus on letting people tell the stories of how they got to the point they are at in their field such as Roen, Brown & Enos' (1999) book of narratives of how major figures in composition established themselves in the discipline, or Braine's collection of narratives of L2 scholars who are, themselves, L2 speakers (Braine, 1999).

1.5.1 Victor Villanueva

Villanueva's book *Bootstraps* (Villanueva, 1993) is certainly one of the most unusual books I read in researching the literature relevant to this dissertation. The only book that I have read that is more unusual and extreme in its blending of research and reflexivity is Ashmore's (1989) tongue in cheek *The Reflexive Thesis*.

Bootstraps chronicles Villanueva's life as a writer and researcher, starting from his childhood in Brooklyn and ending with him as associate professor in the department of English at Northern Arizona that he held at the time the book was published. Villanueva clearly has learned what it takes to be a successful academic writer; he was chair of the Conference on College Communication and

Composition, and became head of his department at Washington State University. However, he views himself, as he puts it in the book's subtitle, as an American academic of color. Like W. E. B. DuBois (1996) *The Souls of Black Folk* that he refers to in the book, he feels both a part of and not a part of the academic life he participates in; he feels both part of and not a part of his Puerto Rican heritage.

In the book, Villanueva traces his long academic journey, including dropping out of high school, military service in Korea and Vietnam, community college, university, graduate school, and, eventually, appointment as a professor. He identifies several factors that were influential in helping him become a successful academic writer, including a close and loving family, a lifelong love of language, several influential teachers, and a discovery of contrastive rhetoric and classical rhetoric. He developed a strategy that helped him write when he was an undergraduate that he describes as "Professorial Discourse Analysis":

Professorial Discourse Analysis became a standard practice: go to the library; see what the course's professor had published; try to discern a pattern to her writing; try to mimic the pattern. Some would begin with anecdotes. Some would have no personal pronouns. Some would cite others' research. ... Whatever they did, I would do too. And it worked, for the most part, so that I could continue the joy of time travel and mind travel with those, and within those, who wrote about things I had discovered I liked to think about ...And soon I was writing like I had written in the

community college: some secondary reading beforehand, but composing the night before a paper was due, a combination of fear that nothing will come and faith that something would eventually develop, then revising to fit the pattern discovered in the Professorial Discourse Analysis, getting “A’s” and “B’s,” and getting comments like “I never saw that before!”(p. 71).

Such a strategy of foregrounding style in his writing served Villanueva well as an undergraduate student, but he found that he needed to adopt a new strategy where “style [takes] a back seat to concept for many” (p. 87). He admits that he has never felt fully comfortable with “scientific discourse” and spends much time drafting, revising, and “always receiving long advice on how I might revise” (p. 88).

Villanueva’s book is certainly an unusual blend of styles that switches between first person and, more often, third person, between serious and comic, and between poetry, conversational discourse, and more conventional writing. In my reading, I found the more reflective passages where Villanueva considers how a particular person or situation affected his writing and identity quite enlightening. Villanueva’s “mixed-genre piece,” as he calls it, stands out for being one of the few literacy autobiographies written by a second dialect speaker of English who became a well-established member of the academy.

1.5.2 Reflections on Multiliterate Lives

Reflections on Multiliterate Lives is a collection of stories of successful L2 writers (Belcher & Connor, 2001). This book and Silva *et al's* (2003) article that I describe in the next section remind me a lot of the work of Studs Terkel, (e.g., *Studs Terkel: Conversations with America*, 2002; Terkel, 1973, 1995, 2000). Terkel, in each of these books, presents largely verbatim transcripts with only a brief commentary on the material at the start of the book.

Like Terkel, Belcher and Connor provide the participant's narratives and transcripts from interviews of what it is like to live and write in an L2. They limit their contributions to the book to an 18 page essay introducing the contents; they also include an appendix of interview questions. The book is divided into two sections, with the first being devoted to those who work in L2 studies and the second devoted to those who write an L2, but are in fields other than L2 studies.

In the first section, "Language Specialists as Language Learners", ten writers provide their narratives of how they learned to write in a second language and what their attitudes are toward writing in English. As can be expected, each of these writers emphasizes a different theme. These themes include the use of an L1 in the drafting and invention process (Miyuki Sasaki), academic gatekeeping (Vijay Bhatia), a belief that not all effective written texts need to be perfectly native-like (Ryuko Kubota), and memories of being encouraged to learn and study English in the People's Republic of China and passing the university entrance exam when only one out of one hundred passed because it was the first

time the exam had been used in ten years after the period of the cultural revolution (Jun Liu).

The second section of the book, “Crossing Cultures across the Disciplines” is composed of three narratives and five interviews from a range of academics and university administrators, all with appointments at universities in the United States. Each of the eight scholars presented in this section works in an area other than languages and literatures, but each of them stresses the importance of language and writing in their narrative or interview. For example, Ming-daw Tsai, a chemistry professor from Taiwan, says that “learning a language is inseparable from ‘learning’” (p. 140); and Louis de Branges, a French mathematician, believes that “what a teacher has to say is never less important than how he says it” (p. 143). My personal favorite in the section was the interview with Robert A. Agunga, an agriculture professor originally from Ghana. Agunga stresses the importance of graduate school mentors and notes that he never published when he was in graduate school, but, since then, has worked on collaborative publications with his major professor.

1.5.3 Yoshiki, Nathalie, Ruo-Ping, Gloria, Sandra

Silva and Reichelt asked five second language writers to write them a brief prose description of how they developed and how they would describe their current state as second language writers (Silva et al., 2003). Most of the article is a verbatim presentation of those five essays, which explains why Chikuma,

Duval-Couetil, Mo, Velez-Rendon, and Wood are given full credit as authors along with Silva and Reichelt.

After presenting each of the five narratives, Silva and Reichelt draw eight conclusions from them:

1. Affect, both positive and negative, was an important factor in all of the essays. Each of the writers had, after a long period become more comfortable with and confident of their ability to write in a second language.
2. Composing processes and strategies were a frequent theme in the narratives. These included the use of translation between L1 and L2 and reference books such as dictionaries, thesauri, and other reference books. However, the writers have mixed feelings about the usefulness of these books, especially bilingual dictionaries.
3. Models such as those found in textbooks and writing guides like those written for submitting manuscripts to scholarly journals were important.
4. Revision, including the strategy of completing a draft and leaving it for a few days before working on it again, was important.
5. The writers demonstrated a considerable awareness of both rhetorical features like creativity, directness, logic, and redundancy and rhetorical elements such as argument, conclusion, paragraph development, and thesis statement.
6. The writers were very aware of the fact that their texts had errors, although they were not overly concerned about this and felt that their errors were generally local, rather than global, such as articles and prepositions.

7. The writers spent quite a bit of time talking about responses teachers had to their writing, which was generally positive.

8. Silva and Reichelt were surprised to see that few of the writers talked about getting feedback from L1 writers, and what they did have to say about this process was mostly negative (pgs. 107-110).

Silva and Reichelt conclude their article by raising a series of questions they feel these narratives warrant about L2 writers, L2 writing processes, L2 texts, and the readers of L2 texts. Finally, they suggest that L2 writer's autobiographies, like the ones they presented, would work well both as assignments in L2 writing classes as well as data for L2 writing researchers.

1.5.4 Summing Up

Each of these three collections of literacy autobiographies helps to add to knowledge of what a successful L2 or second dialect writer is. All three emphasize that success in writing takes time, it takes effort, and there are many teachers, mentors, and classes that are part of the process. I know that, as a writing teacher, I often hope that students will show demonstrable improvement by the end of the semester. Each of these studies suggests that that improvement may come, but the process is an extended one.

In addition, within the L2 writing literature, much of the research is either short in duration or focuses on lower level writers. As Cook has argued, the field of L2 studies needs to include more examples of people who demonstrate the

ability to successfully use more than one language, both as research subjects and as teachers and researchers (Cook, 1999).

1.6 Research on the Affective Dimension of Writing in Computer Science

An examination of the most important and highest circulation L2 studies journals (*Applied Linguistics, English for Specific Purposes, English Language Teaching Journal, Journal of Second Language Writing, System, TESOL Quarterly, World Englishes*), composition studies journals (*College English, College Composition and Communication, Computers and Composition, Rhetoric Review, Written Communication*), and professional writing journals (*IEEE Transactions on Professional Communication, Journal of Business and Technical Communication, Technical Communication Quarterly*) journals over the last 15 years shows that very few articles have been published on the subject of L2 writing in CS.

The studies I did find included Posteguillo's work (Posteguillo, 1999) on how CS articles use a pattern different than the IMRD (introduction, methods, results, discussion) pattern believed to be common in scientific research papers (Swales, 1990; Swales & Feak, 1994), Orr's work outlining the multiple genres written by CS researchers (Orr, 1999), and Anthony's work on titles in CS research articles (Anthony, 2001). There have been a few case studies of the culture of CS, including Kidder's (1997) *Soul of a New Machine* and Reynold's study, notable for being the first to use the term "corporate culture", of the culture of one technology firm (Reynolds, 1987).

However, other than one brief article (Hadziosmanovic, 2001), none of the studies I was able to find were case studies focused on not only what the CS professionals did, but, also, how they felt about what they did. Even Hadziosmanovic's article is not about writing. This gap suggests two research questions that I discuss in the next section.

1.6 Research Questions

The remainder of this dissertation is concerned with answering the following questions. These questions were originally developed from those provided in the appendix of Belcher and Connor's book (2001, pgs. 209-211). They were modified based on which questions seemed most helpful in eliciting useful responses from the three participants.

- 1) What sort of writing do graduate students in a CS research laboratory do?
- 2) How do they feel about the writing that they do?

The first question is relatively straightforward, although, as will be seen in chapters three, four, and five, much of the writing that these students do is writing computer code, although they write a variety of other texts as well. However the second question requires some explication. I am specifically interested in the affective dimension of writing and understanding what sorts of emotions writing has for them. Included within this question are the following:

- Do they find writing difficult?

- Is this difficulty the same for all writing situations? For example, is there a difference between writing in their L1 and their L2 or between writing a research paper and an email?
- What memories of successes and failures in writing do they have?
- What strengths and weaknesses do they feel they have as writers?

Finally, related to the first two questions, this dissertation concentrates on describing the literacy autobiographies of each of the three participants. This literacy autobiography includes the following research questions:

- What people influenced their writing?
- What were the writing activities of current and preceding generations of their family?
- What role did writing has play in their homes and in their family's social, cultural, occupational, and/or religious practices?
- What was the role of writing with peers?
- What kinds of writing have they done outside of school?
- What sort of influence has technology have had on their writing and their attitudes toward writing?
- What sorts of reading have they done and how has this reading related to the writing they have done?

The next chapter of this dissertation provides a context for the study and outlines the methodology I used to collect and analyze the data.

CHAPTER 2

METHODS

This chapter is organized as follows. In section 2.1 I describe how I began this study. This is followed by a description of computer sciences (CS) 661, a course I was involved in teaching where I first met the people in the ABC laboratory. The next section, 2.3, describes the ABC laboratory. After that, the next three sections, 2.4, 2.5, 2.6, describe the methods used in this study, ethnography, narrative inquiry, and data collection and analysis, respectively. Finally, the chapter ends, in section 2.7, with some reflections on insider/outsider status.

2.1 Beginnings

Many ethnographic research projects can trace their origins back to a moment of serendipity. In fact, Merton and Barber's recent book on the subject (Merton & Barber, 2004) gives considerable evidence that much of what is now known about the world came to us through an amalgamation of inspiration, perspiration, error, accident, and chance – certainly not through careful planning with predictable results. The fact that I chose to study writing in CS research laboratory is certainly no exception. In this section, I describe some of the ways

in which I had anticipated doing a project like this one. The next section of this chapter, section 2.2, describes the course I helped teach which gave me my first real exposure to the people who would become participants in my dissertation.

My first contact with some of the research participants involved with this dissertation came when I received an email message from Professor Irwin Weiser asking if I would be interested in considering an offer to work as a teaching assistant (TA) for a writing intensive class in the CS department that was to be taught by Professor Jens Palsberg. While that certainly could be considered a starting point for this dissertation, I would argue that I was actually looking for such a topic well before that because I had been interested in how L2 writers write theses and dissertations even before I began my doctoral studies. Prior to coming to Purdue, I taught academic writing and speaking to Polish students of English and spent the last two years of my teaching there trying to figure out how to better prepare my students to write their upcoming MA theses. These efforts are described in Palsberg & Baxter (Palsberg & Baxter, 2002).

During my first year at Purdue I used my course projects to further explore the types of texts that advanced second language (L2) writers produce. I wrote an annotated bibliography on L2 writers and dissertations in my course on the theoretical foundations of teaching English to speakers of other languages (English 516) for Professor Margie Berns, and, that same semester, I wrote a bibliographic essay on writing for specific purposes in Professor Janice Lauer's contemporary composition theory class (English 591). During my second

semester, I took Professor Tony Silva's L2 writing seminar (English 630) and did an empirical investigation of how first language (L1) and L2 writers structure the last chapter of their dissertations differently. I revised this last paper about the structure of the last chapter of dissertations and presented it at the National Writing Across the Curriculum conference in Bloomington, Indiana in the summer of 2001.

I mention the fact that during my first year of the PhD program I was exploring the issue of the types of texts that graduate L2 writers produce to suggest that, at least in some ways, the project that this dissertation became was something that I had, in some ways, considered doing earlier. However, to bring us back to the theme of serendipity I mentioned at the start of the section, I certainly never thought that I would have been involved with the CS department as a teacher and a researcher the way I was the next year. In addition, I had no real commitment to any particular method of inquiry at the time. It was only in my second and third years when I took courses in qualitative research methodology (with Professor Pat Sullivan) and ethnography (with Professor Myrdene Anderson) that I made an intellectual commitment to doing ethnographic case study research, at least for the duration of my dissertation.

The next section describes the course that I was involved in teaching in the CS department in the fall of 2001.

2.2 CS 661

As I mentioned in section 2.1, in the spring of 2001, Professor Irwin Weiser, the director of composition at that time, told me that there was a teaching assignment in the CSs department for the fall that he thought might interest me. That assignment would mean being a teaching assistant (TA) for Professor Jens Palsberg who was planning on teaching a writing intensive CS seminar in the fall. Professor Palsberg wanted me to help him plan and execute the writing part of the course.

When I met Professor Palsberg, a Danish man just three years my senior, I realized that he was a man who ate, slept, and drank CS. He earned his PhD in 1992 in Denmark and by 2002 had been promoted to full professor and associate head of his department. But, one of the interesting things about him – and I consider this to be a highly desirable characteristic – is that he is quite willing to concede on issues when he sees that someone else has more expertise than him. He quickly saw that I had real expertise in the teaching and tutoring of academic writing and speaking and was interested in hearing my ideas about how to approach this part of the course.

Over the next few weeks, mostly by email since I spent that summer in Ann Arbor, teaching English for academic purposes at the University of Michigan, we discussed how to set up and run the course. The course was to be a seminar course in which the students would read 22 papers, each would present one of

them, and each student would write formal reviews of eleven of the papers. The idea we worked out was that the students would write one review per week and then email the review to me. I would then read them and comment on them. And then, after that, I would have individual conferences with each student about how to improve the reviews. After the conference was finished, the students would have a few days to revise their reviews and submit them to Professor Palsberg for a grade. I did not need to attend any classes, and I was not responsible for any of the grading.

This arrangement worked out very well. Professor Palsberg later commented that he did not know what I did with the students, but he thought that he saw substantial improvement in the writing that the students sent him.

After the course ended, we both wanted to write an article about it to try to show other people in the field a basic roadmap of how they might design their own course if they wanted to teach their students to write reviews. We collaborated on one that was later published in *Communications of the ACM* – the largest circulation journal in the field of CS, with over 70,000 subscribers. We both put an equal amount of hard work into writing the article and were both very pleased with the final product. We got a few nice emails about the article and Professor Palsberg has been asked about it several times at conferences he has been to since the article was published.

The reason I described the class CSs 661 in this section was because it was my first experience with Purdue's CSs department, the place that became

the site for my dissertation. Many of the students in the class were members of the ABC research laboratory (ABC), and all of the subjects who participated in my study were members of ABC. In the next section, I describe the ABC research laboratory in order to provide a context for the chapters that follow.

2.3 Description of the ABC Research Laboratory

The ABC research laboratory is part of the computer sciences (CS) department at Purdue University. The core members of the laboratory include four professors who fund the lab with their research grants, approximately 15 graduate students, and one post-doctoral fellow. I say approximately 15 students because, at any given moment, a few may be doing internships for various private companies or government agencies, thus earning four to six times as much as they would as graduate students.

Students who are admitted to Purdue's CS department can fund their studies either by being a teaching assistant (TA) or a research assistant (RA). This assignment is made at the time that the student is admitted, although graduate students can be assigned to be RA's at any point in their studies if they can find a professor who is interested in them and has available funding. It is interesting to note that graduate admissions are done by all of the faculty, rather than a committee. As the applications are received, all of the relevant materials for each candidate are put in a file and passed around to each of the faculty. After each member of the faculty has had a chance to review all the applications, they all meet together and determine who they will admit. As of this writing, there

are approximately 25 full time faculty and 100 graduate students in Purdue's CS department.

As can be expected, TAs earn their funding by teaching classes, recitations, supervising labs, grading homeworks, or other teaching-related duties while RA's spend their time working on projects funded by external grants. However, it should be noted that students who have funding as RA's are occasionally assigned to teaching duties as well. When I asked Professor Palsberg about this distinction he described it as follows, "everyone here is doing research, but some people have less time to do it than others." Another important distinction between TAs and RAs is that, because of the limited amount of space available in the CS building, only those who are RAs are assigned offices in the CS building while TAs are given offices in the Physics or Psychology building. This assignment means that RAs only need to take a short walk down the hall to get to a professor's office or lab, while, by contrast, a TA would need to walk from his or her office to another building to talk with the same professor. The difference in distance here means that, for RAs, professors are more accessible, at least in terms of physical distance, than they are for TAs. This relative lack of distance can be seen when one looks at the layout of the computer science building.

Figure 2.1 shows the approximate layout of the second floor of the CS building. The building that was once a gymnasium, and groundbreaking has recently begun for a new CS building. As can be seen, the three professors who

supervise the ABC lab all have offices on the second floor (Professor X, Professor 1, and Professor 2); and Professor Palsberg, before he left for a position at UCLA, had an office on this floor as well. Since the lab itself is also located on the second floor, the faculty and students only need to take a short walk to have a conversation with each other. Further, some of the faculty supervising the lab prefer working in the lab on their laptops rather than in their offices. This ability to work away from their offices is made easier by the routers spread throughout the building that provide wireless access to the Internet. These routers are actually owned and maintained by the CS department, and CS is one of the few departments to not rely on the Purdue information technology department to handle this responsibility for them.

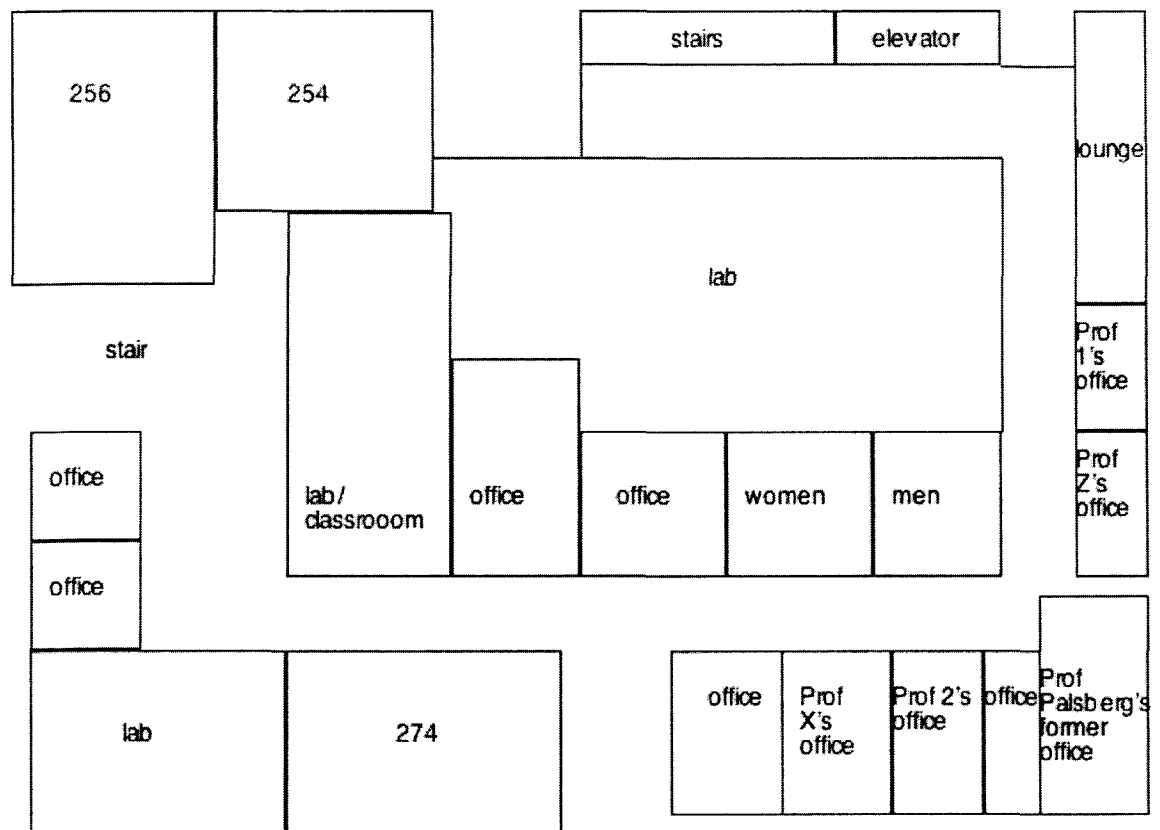


Figure 2.1 Sketch of the Second Floor of the CS Building

The lab itself is composed of three rooms, one large one with about fifteen desks, arranged in cubicles which I will refer to by its room number, 274. Figure 2.2 shows a sketch of what the room looks like. As can be seen, much of the room is filled with desks for the students to do their work at. On each desk there is a monitor with a PC under it.

There is also a couch and a long table in the room where much of the social activity takes place. At any given moment, one might see a conversation about American involvement in Iraq, a thesis or dissertation defense, an informal meeting between a student and his or her major professor, or a group of

professors and students eating sandwiches delivered from Subway. In addition, this room has a refrigerator stocked with sodas and bottled water and an espresso machine. One student, responsible for drinks in the lab, drives to the grocery store on a weekly basis and keeps track of who owes how much for what they drank every two weeks.

Despite the fact that there is a large table and couch in 274, there is a well-understood lab ethos that limits social conversations in the lab. RA's working in the lab are willing to have occasional conversations in 274 unrelated to research, but people generally walk to another building to have a coffee if they expect to have a longer social conversation in order to not disturb the people working in the lab. Lunch, particularly on Fridays, is one exception to this practice; but, once lunch is over, people generally go right back to work.

Down the hall there are two other rooms that are smaller than 274 – room numbers 254 and 256. Room 254, has four desks, and is the larger of the two rooms with a long table in the middle. In addition, the windows are larger and let in more sun than those in 256. The door to 256 is generally left open, and it attracts more visitors than 254 does. Room 256 is the smaller of the two rooms and has four desks, with a large open area in the middle of the room. All of the desks are assigned to students working in the lab, and there is no table which might attract people not assigned to this room to do their work there.

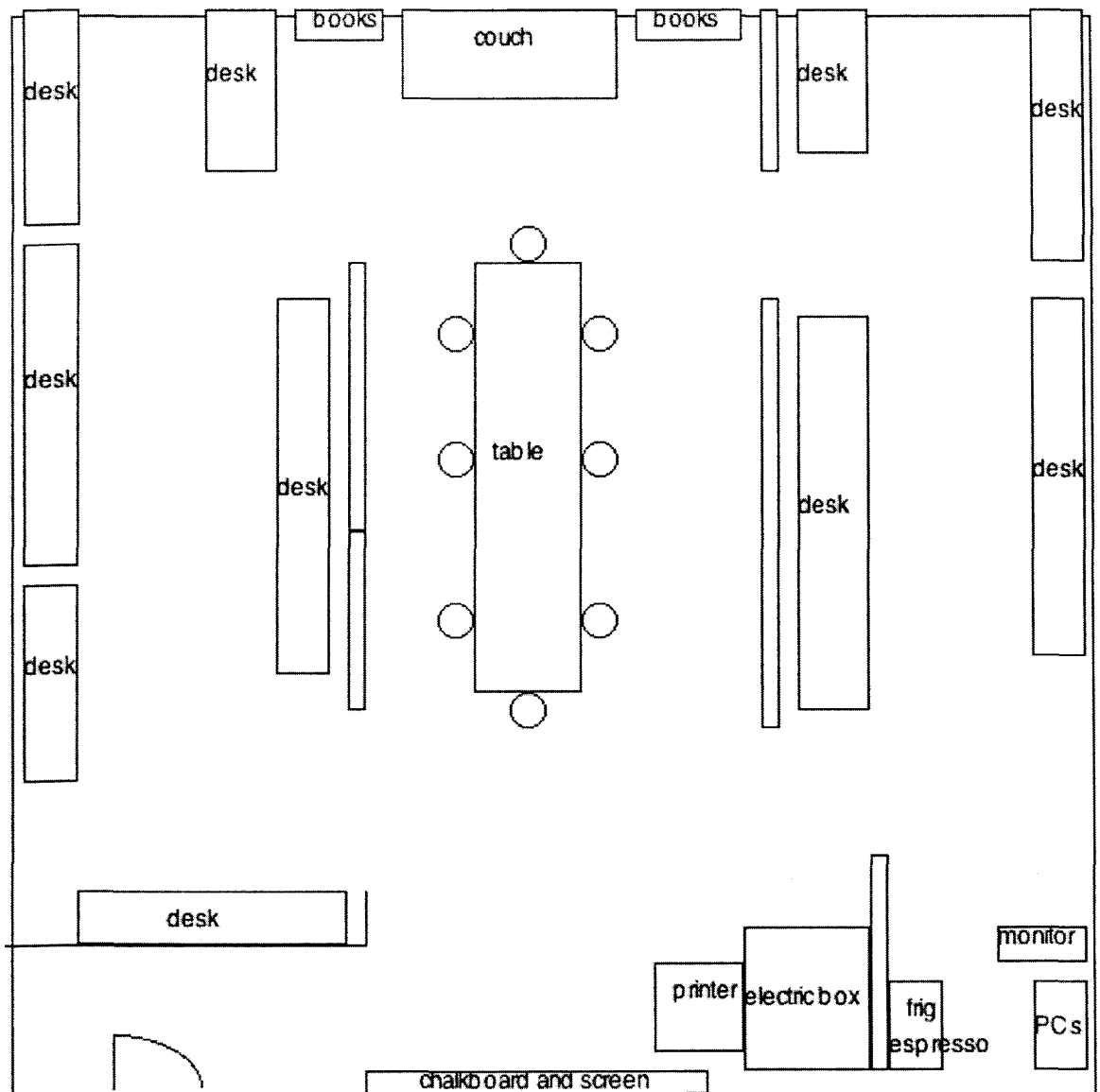


Figure 2.2 Sketch of 274

ABC hosts a number of events for its members where people give scholarly presentations. These include thesis and dissertation defenses, invited outside speakers, and a blackboard talk lecture series where members of the lab present results of their research in progress. (Some refer to the latter as the

blackboard talks.) These talks are often given using computers and an LCD projector. In 274 there is a pull-down screen and a projector for this purpose.

There are a large number of scholarly events which take place in the lab, and I have also found the people who work there to be, on the whole, rather social and affable. The members of this lab enjoy joking around and mixing research and jokes on the chalkboards and the posters placed in the office. Given the propensity on the part of the members of the lab to tell jokes and play practical jokes, I find it interesting that no one has given names to these rooms to replace the rather dull numbering system in place (254, 256, 274).

As mentioned earlier, laptops are common in this laboratory. Macintosh PowerBooks are ubiquitous with no fewer than five used by faculty and graduate students – most of them purchased with grant money. But most people in the ABC lab use computers with Intel or AMD processors; these machines are usually called X86 machines, related to the 286, 386, 486 nomenclature for IBM compatible personal computers. These machines are often made by Dell, although the particular manufacturer is of little concern to most members of the lab; and they run various versions of the Linux operating system instead of Windows. Most people in the CS department use Linux because it is widely seen to be more reliable, more customizable, and more secure than windows. It is also the de facto operating system for most CS researchers and is commonly used in many programming labs in industry as well.

As can be expected, each student in the lab is given a computer to do his or her work on. Each of the desktop computers assigned are given names shortly after they are purchased in according with the ABC naming conventions.

The [ABC] Lab has three separate naming schemes, and one collective naming scheme currently in use. The collective naming scheme is applied to machines purchased jointly, by major grants shared among the three professors. The three other naming schemes were established by each of the three professors before the ABC Lab came into existence. In addition, there is a meta-scheme, by which [they] assign names to new machines in alphabetical rotation.

In many cases, machine names do not correspond to the naming scheme of the primary user's advisor, due largely to cubicle rotations.

[Professor 1's] machines are named after Famous Australian Cricket Players.

[Professor] Palsberg's machines are named for Shakespearean characters, particularly those named in a certain play about a Danish Prince.

[Professor X's] machines are named for animals.

Collective machines are named for relatively obscure science-fiction entities.

In addition, there are machines outside of the immediate group that also run ABC Linux. [Professor 3's] Internetworking Systems Lab has

Mordred, Morgana, and Nimue, which are all named for Arthurian Legend. (As has been [Professor 3's] custom since the beginning of time.)

[Professor 2's] machines, Malolan and Vaikuntam, are named for Avatars and Celestial Abodes of Vishnu.

The [ABC] Lab Apple Macintosh machines running MacOS X are named for Biblical references to suffering and punishment: Famine, Pestilence and Death, (Horsemen of the Apocalypse, Rev 6:1-8) and Millstone, ("...better for him to be thrown into the sea with a large millstone tied around his neck." Mark 9:42.) (Brylow, 2002).

These names are presented in tables 2.1, 2.2, and 2.3. As can be seen, these naming practices show the personalities and origins of the faculty members who supervise the lab. Professor Palsberg, for instance, named many of his machines after characters in Shakespeare's play *Hamlet* in order to make reference to his Danish heritage – he is a Danish citizen. Professor 2 uses names which reflect his Indian heritage and religious practices. In addition, the faculty and students, based on my observations, clearly have had fun in naming many of the machines. Each of the names on the web pages has a link in case anyone in the lab is interested in learning more about what that particular name represents. In several cases, particularly with Shakespeare and science fiction entities, I had to follow the links in order to learn for myself the origin of these names.

Each of these machines can be accessed by other people in the lab who have administrative privileges and the proper password. In fact, there is one person in Australia who has been contracted to work on a project in the lab and he often accesses machines in the ABC lab as part of his work. While most machines are assigned to particular people, some of them are unassigned; these machines are typically used to run benchmarks to determine how expensive – both in terms of space and time – the execution of a particular piece of computer code is.

None of the laptops used in the laboratory, to my knowledge, have names. Presumably, this is because only the desktop computers can be accessed remotely. When accessing a computer remotely, one needs to give it a name in order specify which machine one wants to use. The laptops can be used to access ABC lab machines, but they, generally, can not be accessed in any way other than using the keyboard and mouse on the physical machine itself.

Table 2.1 ABC Lab Machines Named by Professors Who Are/Were Part of the ABC Lab

Famous Australian Cricket Players (Professor 1)	Shakespeare, esp. Hamlet (Professor Palsberg)	Animals (Professor X)	Avatars and Celestial Abodes of Vishnu (Professor 2)	Biblical references to suffering and punishment (Mac OS X)
Border	Cordelia	Aardvark		Death
Bradman	Desdemona	Dragon		Famine
Chappell	Elsinore	Dolphin		Millstone
Marsh	Falstaff	Fox		Pestilence
Simmo	Hamlet	Gecko		
Taylor	Lear	Hamster		
Thommo	Lysander	Ibex		
Warne	Osrice	Jabberwock ¹		
Waugh	Ursula	Jaguar		
Yallop	Voltemond	Koi		
		Newt		
		Puma		
		Quillback		
		Rabbit		

Table 2.2 ABC Lab Machines Named by Other Professors

Name	Origin
Mordred	Arthurian legend
Morgana	Arthurian legend
Nimue	Arthurian legend

¹ Clearly, Jabberwock is a reference to Lewis Carroll, not an animal. When I asked Dennis, the student who named the machine, why the name didn't fit in with the existing scheme, he had this to say. "Now that you mention it, I guess it doesn't really fit in to the naming scheme. I recall that we needed a "J" name to fill out the alphabet scheme, and the name seemed highly appropriate for [that student]'s machine somehow. I suppose we considered it to be an animal, albeit a fictional one."

Table 2.3 ABC Lab Machines that Are Named After Relatively Obscure Science Fiction Entities

Name	Origin
Geezy	Character from Galaxy Rangers television cartoon
Wedge	Character in the first Star Wars movie
Xoanon	Character from the Dr. Who television show
Zardoz	Title of 1974 movie with Sean Connery (His first post-James Bond movie.)

As is commonly found in CS departments in the United States, the majority of the students in the ABC research lab are non-native speakers of English. However, most of the conversations, both about research and about pleasure, take place in English. One of the reasons that English is the primary language of wider communication in this lab is because most of the non-native speakers are the only speaker of their language. In addition, compared to other research labs I have visited, the proficiency level of the students in the ABC lab is very high. In fact, as I mentioned in section 2.2, when I asked students in the lab who were enrolled in CS 661 to fill out a form listing their TOEFL scores and GRE verbal scores I discovered that many of the students had scores in the ninetieth percentile.

Having described the context for the study by giving a brief description of the people and place where they work, let me now consider the methods used in the study. The next two sections describe the methods of ethnography and narrative inquiry.

2.4 Ethnography, Emic, and Etic

This study is an ethnographic one using an inquiry method known as narrative inquiry. This section defines and discusses the concept of ethnography. Section 2.6 discusses narrative vis-à-vis my study.

The term ethnography refers both to the process (doing ethnography) and the product (written document of the research) of participant-observation in a naturalistic setting. The process is often called fieldwork and often involves the researcher living with the group of people he or she is interested in learning more about for an extended period of time. The product of ethnography is generally a book or dissertation, although ethnographers have produced documentary films and television programs, as well as other vehicles which present and describe the people they studied.

Ethnography is usually defined as the study of cultural behavior. The definition of culture is a contentious issue within the ethnographic literature. Duranti (Duranti, 1997), for example, offers six different definitions and notes that he has limited himself to definitions that include a linguistic component. Other scholars such as Ortner (Ortner, 1984) and Keesing (Keesing, 1974) have written articles solely devoted to definitions of culture and its relationship to ethnography.

In this dissertation, I have adopted a theory of culture that foregrounds practices. In this definition, culture is the set of beliefs and practices associated with a particular group of people. Bourdieu (Bourdieu, 1977, 1990), although not an ethnographer, is perhaps the most well known advocate of such a theory. It is

important to recognize that a practice theory of culture sees people neither as passive things acted upon, nor as agents completely in control of their own destiny. Bourdieu (1990, p. 52) introduces the notion of *habitus* to account of the fact that people are, at the same time, products of external material and conscious intentional subjects:

The theory of practice as practice insists ... that the objects of knowledge are constructed, not passively recorded, and ... that the principle of this construction is the system of structured, structuring dispositions, the *habitus*, which is constituted in practice and is always oriented towards practical functions.

Having discussed a practice theory of culture, I now return to describing ethnography.

Michael H. Agar (1996, pp., 119-127) argues that ethnography differs from other social science research methods in five important ways (paraphrased from (Johnstone, 2000):

1. The researcher starts out “one-down” by needing to learn about the culture as an outsider before the research can progress.
2. The specific research questions for the study are generated as data is collected rather than before starting.
3. Because the researcher has to learn how the group acts and thinks as a participant-observer, ethnographic studies are longitudinal.

4. The ethnographer has to do his or her research on the participants' home territory.
5. All data are assumed to be holistic. That is, each activity observed is assumed to be inter-connected with the entire set of beliefs and practices of the group in question.

In addition to these five elements, one of the central distinctions assumed by many ethnographers and researchers using ethnographic research methods is a distinction between *emic* and *etic*. This distinction was first articulated by Kenneth L. Pike in a series of lectures delivered in 1956 at the Dallas Theological Seminary and graduate school of theology. In those lectures, Pike made a distinction between the way an event is interpreted by someone born into a particular culture and an interpretation made by someone born and raised outside of that culture or a "man-from-Mars" as he says. He gives an example of when he was in the Amazon with another person and saw the branches of a nearby tree swaying. He interpreted this event as the wind moving the tree; by contrast, his companion, noting the particular movements of the branches in a small area, knew that there was either a monkey or a small bird in the tree, and, hence, a source of food. Pike goes on to give these two views of the same event names as follows:

Since the analyst working in various areas with these concepts needs to refer to them frequently, it is convenient to have names for them. I have coined the term etic to refer to the man-from-Mars view, and the

term emic for that of the normal participant. The labels are coined by utilizing the last half of the terms phonetics and phonemics which are current in the linguistic field in the approximate sense implied here, but with the new terms generalized to cover other areas of behavior (Pike, 1957).

The terms phonetic and phonemic have similar meanings; they refer to sound pairs that can be demonstrated to have measurable differences, in the former case, versus sounds that have differences which result in a difference in meaning for people who have been raised in a particular speech community. For example, the phrases *light housekeeper* and *lighthouse keeper*, when spoken, have different stress patterns, and, for fluent speakers of English, this rather subtle difference allows them to hear a difference in meaning between these two terms. This difference is called a phonemic difference². By contrast, for those who are not extremely familiar with the stress patterns of English, these two phrases may be impossible to discriminate, thus making it impossible for a person who was not born in a place where English was the dominant language or who had not spent years studying the language.

Just as phonemic structures are language specific, vis-à-vis language-free phonetics, an *emic* perspective would be culture bound, in contrast to an *etic* perspective which would be, at least theoretically, culture-free. Of course, *emic*

² Introductory books on linguistics and phonology generally talk about phonemic and phonetic differences in terms of individual sounds or segmentals. However, this difference applies equally well to units larger than syllables or suprasegmentals.

and *etic* distinctions cannot be absolute. What the ethnographer is after is not a perfect understanding of the *emic*, instead, he or she is after a reasonable approximation of the participants' view of the world. In my case, my goal was to understand what types of writing the participants in my study did and what they thought of and felt about these writing activities.

A further point is perhaps in order here. What is often overlooked, is that the scientific observer's *etic* usually amounts to his or her own *emic* because no one has proposed a structure and/or nomenclature for one single scientific cultural *etic* system, as exists in phonology with the infinitely nuanced, yet finite, international phonetic alphabet (International_Phonetic_Association, 1999; Pullum & Ladusaw, 1996).

There are ethnographers who do not consider an understanding of the *emic* perspective of the group they are studying to be the best way of doing ethnography. Marvin Harris, in particular, has spent the better part of his career proposing materialist explanations for cultural phenomenon rather than explanations based on *emic* understandings, (e.g., (Harris, 1974). Nevertheless, many ethnographers consider the aim of their research to be an understanding of the *emic* perspective of the group of people they are studying. It is beyond the scope of this dissertation to give a more detailed description of what the ethnographic enterprise is all about, but excellent descriptions have been offered elsewhere (Agar, 1996; Ellen, 1984; Emerson, Fretz, & Shaw, 1995; Jackson, 1987; Spradley, 1980; Wolcott, 1995).

There are a number of different inquiry methods which may be used in order to better understand the *emic* perspective of a particular group. In this dissertation, I collected and analyzed narratives in order to do this. The next section briefly defines and describes narrative inquiry using an example of a story collected from one of the participants to clarify the nature of narrative.

2.5 Narrative Inquiry

In this study I am concerned with what might be called personal experience narratives. The study of these types of narratives was first done by William Labov in his groundbreaking work on African-American vernacular English (Labov, 1972). Labov's research was remarkable, partly because it was one of the few instances in which a new type of linguistic event was discovered in African-American vernacular English before scholars studied the same phenomenon in, for lack of a better term, "mainstream" English.

A narrative, in the field of linguistics, is usually defined as the oral retelling of a sequence of events that happened to the person doing the telling. By contrast, a story is a narrative with a point (Johnstone, 1990). In other words, a story is a narrative that a person tells in order to not only describe something that happened to him or her, but, more importantly, to comment on what he or she thought of that event.

Within linguistics, researchers are interested in studying narrative in order to see what it can add to knowledge of spoken language and discourse. This was not my aim in this study. I was particularly interested in the approach of Clandinin

and Connelly, a pair of Canadian education researchers, who see narrative as a way of studying experience (Clandinin & Connelly, 1991, 1994, 2001). In other words, by collecting stories, a researcher can learn not only what happened to the person, as he or she tells a story about that event, but one can also learn how that person interpreted and felt about the event.

The following transcript gives an example of a narrative I collected as part of doing my study. The initial S, stands for Scott, me, the interviewer, and D stands for Daniel. Daniel is the subject of chapter X. During one interview, he offered the following story when we were talking about his attitudes toward technology:

1. S "You really strike me as funny. I would think you would be in love with technology being a computer science person. But there are all these technologies that you would just rather not use. "
2. D "Technology is the enemy"
3. D "I was never very technical"
4. [He talked about his father's tape recorder that he used to take apart.]
5. D "My father had like a very old cassette player. And I used to open it regularly because it didn't work very well. And I would open it."
6. S Laughs
7. D "And my father like cared a lot about that cassette player. And he didn't know that I'm opening it. You know. And it happened once, I opened it. And then I put everything back. And then I was left with three screws. And I had no clue.
8. S "Didn't know where they went. But they were there before." LAUGHS
9. D "There was no logic in those three screws. And I kept them. I said, well, if my father will open it and discover they are missing I will give them back to him."

10.S LAUGHS

11.D “So the cassette player had a sort of a belt. And it was making a strange noise because it wasn’t correctly...

12.S “aligned”

13.D “aligned. yes. And I was really annoyed by it. And so was my father. I was never able to solve that problem. My father and I would open it independently and try to solve it. And my father would suspect that I broke it.”

14.LAUGHS

15.D “I did not do anything to it. I didn’t harm it you know by opening it. I couldn’t repair it. My father couldn’t either and he is much more technical than I am. I assume that it was a serious problem. Except that my father tried to keep me away from all the electronics that he had because he knew that I would break them. In this way he inhibited my curiosity. I think after I broke a couple of watches and lighter when I was a kid. And my parents reproached me for that. I said, ok, I will have a watch and I will be very happy looking at it. I will not try to see what is inside. How it works. ...

16.I remember that my father had a very nice lighter. Very fancy one. Actually it was from my grandfather. It was very old. He gave me the lighter. And he said ok this is for you. You can do what you want with it. You can open it. It was very clear. There was a certain period in my life where I would open everything and try to see how it works. But he told me ok you can do whatever you want with it. But this is the last one I’m giving you. The next morning I couldn’t wait to wake up. And I opened it and I spread it like on a sheet. And I was very happy looking at it. And I was so happy that I had so many pieces on the bed. But then I did not know how to put them back. And I was so sad. I mean my father’s prediction came true. And I tried so hard to put it back. And my father didn’t help me to put it back. And I had so many pieces left.

17.You’re familiar with Charlie Chaplin. He had this sketch where he was a clerk in a jewelry shop. And people would bring in watches to be repaired. And stuff like that. But he was only like, you know, cleaning around. And he was the broom guy. At a certain point the keeper of the shop had a problem and he said ‘ok you take care of the business.’ So he’s behind the counter. And then there is a man coming with a clock. So he opens the clock for this guy. And, really, he uses a can opener to open the clock.

And he takes all the pieces out of the clock. And in the end he doesn't know what to do with them. And asks that guy for his hat. And he puts everything in his hat.

18. So that was very similar to what I did. Well, I'm pretty sure if I opened something now I would be able to put it back."

In this story, Daniel gives two different interpretations of how he views technology. On the one hand, he ends the story by saying that he has a certain amount of confidence that he is much better at figuring out how things work than he did when he was a child. On the other hand, several times in this story he describes himself as unable to cope with the technology. With both the watch and the lighter, Daniel says that he could not put all the pieces back together after he took them apart. He also comments on how sad he felt at not being able to do this, and at not being able please his father.

The next section describes my methods for collecting and analyzing the data used in writing this dissertation.

2.6 Data Collection and Analysis

I began with just one participant, Adam. However, I later added four more participants at the suggestion my dissertation committee. This was a reasonable suggestion because: 1) if Adam had dropped out of the study I would have to think about how to salvage my project; 2) I would have been forced to work at the pace Adam worked at and may have had trouble finishing in time; and 3) By having more participants, I would be able to increase the reliability of my findings.

I initially selected four participants, all members of the ABC research laboratory, by consulting with Professor X. When I explained my project to him, he suggested that I could work with his doctoral students. I later approached the students and found that they were all willing to participate. Access is an essential part of any research project; since I had the eager permission of both the students and of their major professor, I thought that I had made a good choice.

Even though there were five participants in the study, this dissertation discusses only three of them. I made this choice because I found that, after working for more than a year, I had enough data to write several dissertations. In addition, and more importantly, the three participants I focus on in the central chapters of this dissertation had, at least in my opinion, the most compelling stories to tell about the writing that they were doing and how they felt about that writing.

Four out of the five participants were working on a large, long-term study funded by the United States Department of Defense, which I will call the XYZ project. To collect data from these students, I attended the weekly XYZ research group meetings. In addition, I interviewed each of the five students every other week. As can be expected, these interviews were sometimes cancelled when the participants had important deadlines, most commonly at the end of the semester. In addition, I also collected samples of the writing that the participants did.

During these interviews I took detailed notes as the participants talked, and I also recorded them. Occasionally one of the participants asked that I not

record his voice. Interestingly, I found that I always took much better notes when I did not make audio recordings. I did not transcribe the tapes in any detailed manner. Instead, I listened to them as I reviewed my notes to fill in gaps that I missed or I wrote down particular phrases that the interviewee used. I also listened for narratives of particular experiences that related to writing and writing-related activities such as reading or technologies that could be used to produce text and code. I make the assumption that writing code is writing in the same way that writing essays, emails and other documents is writing.

When I began this study in the spring of 2002, I used a pencil and paper to take notes and a shoebox tape recorder to record the participants voices. In the fall of 2003 I bought an Apple iBook and used it to collect data. I used the built-in microphone and a program called Audiocorder to record the conversations; and I typed notes using a word processing program at the same time. The advantage of this method of storing my data on the iBook over my previous analog method is that I had all of my data in the same place when I wanted to find and analyze it. I was also able to transfer all of my recordings to my iPod, which allowed me to listen to them as I walked around campus.

After the interviews were over, I usually spent about an hour listening to the recording again to fill in gaps in my notes. I did not make verbatim transcripts of the recordings because I was primarily interested in understanding the role that writing played in the professional life of each of my participants and the

attitudes that they had toward writing and did not feel that verbatim transcriptions would help me do this. My printed notes add up to more than 200 pages.

After I had completed these notes I would read them to identify themes. I used a few different techniques to do this, but the one I found most helpful was to cut each theme out with a pair of scissors. After that I would place each theme in a stack and see if I needed to combine the categories or make new ones.

Once I had these stacks I began to turn these themes into prose narratives. After I had written the themes into coherent prose narratives, I went back to the participants and see if they thought the narratives accurately reflected what they said. Once I was satisfied that I had captured the experience in a way the participants agreed with I revised these written narratives to fit the particular audience I was writing for. In this case, I am writing a dissertation, but this material has also been shaped to fit conference presentations, a lecture, and a possible book chapter.

The next section, the final section in this chapter, reflects on what it means to be both an insider and an outsider at the same time.

2.7 Chapter Reflections: Insider/Outsider Status

Throughout this dissertation, I have made no effort to try to obscure my role in the study. In fact, I have written chapter reflections for all of the main chapters in order to make it clear that I am part of the study. As I tell the stories of Daniel, Adam, and Hiroshi in the following chapters, I also include myself in the stories.

I have not included myself in the story in order to be narcissistic; I have foregrounded the stories of the participants and have included my stories only at the ends of the chapters. One reason I have done so is because of my belief that an ethnographic study cannot be completely neutral in its presentation; I have made myself part of the presentation in order to make some of my biases more clear. In addition, I have written myself into the dissertation in order to highlight the fact that the stories in this dissertation are not unique to only a small group of L2 writers. As I reflect on the stories of Daniel, Adam, and Hiroshi in the coming chapters, I suggest that their stories are, in some ways, not dissimilar to my own experiences.

I know that my limited knowledge of math and of computer programming mean that I could never really understand what people are talking about during the research group meetings. But I did attend many of the meetings. And I did feel like I was as much a part of the group as some of the researchers and graduate students were. In addition, even though I was never really asked to do any programming or what is usually considered the intellectual work of CS, I did offer a skill that many people found valuable. I offered to read the papers my participants wrote and help them improve their English.

Another thing I would like to talk about in this section is the difficulty of maintaining an insider and outsider status. In the remainder of this section, I talk about my experience as both an insider and an outsider in the two jobs I held from 1991 until the year 2000.

In the first job, I was a librarian at the Wayne County Jail in Detroit – the eleventh largest pretrial detention center in the United States, at least at that time. While there I felt like both an insider and an outsider at the same time. I was an insider because I was given access to conversations that police officers normally don't allow civilians to hear and was viewed by many as 'one of us'. But I was also outside of the traditional hierarchical chain of command, and there were moments when it was clear I was not 'one of them'.

Law enforcement is a profession with a tremendously high rate of drug use and abuse, alcoholism, and suicide. On more than one occasion, I walked in to work to find that a co-worker had committed suicide the night before or that someone I knew personally had just been suspended and was likely to be fired for testing positive for cocaine or heroin. One name in particular stands out, Craig Mueller. He once gave me a ride home from the bus stop in his car, a black Ford Mustang convertible, and I found out that his father was the principal of my elementary school. I saw him almost everyday I went to work and he was always pleasant. One day, a few years after I had quit working at the jail, I read in the local newspaper that he had shot himself and his girlfriend to death.

One of the things I find curious when I think back on what it meant to be an insider when working at the Wayne County Jail, at least for police officers was the use of names. When I started, I didn't realize that almost no one used their first name, largely because they did not want the inmates to use them. I began to realize that it was rude to use someone's first name, at least in a context where

an inmate could overhear the conversation, which was in most places in the building. It took me some time to realize that people being unwilling to give their first name was part of the culture of the job.

I used my first name from the very first day, perhaps because I did not fully understand the culture. So, I realized after some years of working at the jail, that there were a number of people who knew me as “Scott” but did not know my last name. This included both employees and inmates. Because I lived in the Wayne State University student neighborhood which was immediately next to one of the roughest districts in the city of Detroit, it was not unusual for me to meet former inmates on the street or on the bus. Inevitably, the person would remember me, comment on how I was one of the few people who treated inmates fairly, and do so addressing me as “Scott”. I am still uncertain if I enjoyed these meetings or not.

When I quit my job at the jail and moved to Poland, I again experienced the feeling of being both an insider and an outsider as a senior lecturer at Adam Mickiewicz University. There I was accepted as a member – a rather valued member at that – of the teaching staff. I was also trusted as a member of oral examination committees and was given the same heavy responsibilities for administering them that Polish staff members were given.

But I should point out that, of the 115 or so members of the faculty in the English department there, I was one of only ten foreign staff members. There were moments – sometimes long moments – when I was clearly not a member of

the group. This was particularly obvious to me when I was forced, in my rather poor Polish, to try and read important department notices that were never written in or translated into English. Of course, my less than wonderful experiences with Urząd Wojewódzki – one of the branches of the Polish government – trying to secure a permanent residence card reminded me in a much more in your face way that I was not, and would never be, Polish.

It was these experiences as both an insider and an outsider that led me, in part, to wonder what it would be like to pursue a research project in the ABC lab in the CS department where I would say I have also been both an insider and an outsider.

CHAPTER 3

HIROSHI

3.1 Chapter Overview

This rest of this chapter is organized as follows: section 3.2 provides a description of Hiroshi; section 3.3 is about Hiroshi's experiences learning English; in section 3.4, I describe how Hiroshi chose to study CS and why he chose to study it at Purdue University; the longest section, section 3.5, describes Hiroshi's attitude toward reading and how this attitude affects his writing; section 3.6 is a discussion of the contents presented in sections 3.1 through 3.5; finally, I finish the chapter with some reflections on some of my own experiences as an adult second language learner in section 3.5.

3.2 Description of Hiroshi

Hiroshi, the first of the three participants in this study, comes from Japan. He originally came to Purdue University's CS program as a visiting scholar and was enrolled in a PhD program in CS in Tokyo, Japan. The reason he came to Purdue's CS department was because one of the professors in his lab at Tokyo University, where Hiroshi was a PhD student, was part of a funded project for which Professor X was the principal investigator. That professor asked Hiroshi to

come to the ABC research lab and do some work under the direction of Professor X.

After he was assigned to a cubicle in the ABC lab and spent a few weeks learning about the research projects being done as well as learning the culture of the US and of the ABC lab, Hiroshi decided that he would prefer to complete his PhD in the US rather than in Japan. So, he applied and was accepted for the fall 2002 semester.

However, this decision to begin graduate studies at Purdue University was something of an odd decision because, compared to my usual observations of Hiroshi being a person who always uses care and caution when making a decision, this one struck me as less calculated. In a later interview in February of 2004, Hiroshi told me that he knew close to nothing about Purdue University when he first came as a visitor. Even in 2004, he was still not certain how Purdue University compared to other universities in the United States and wanted to know my opinion of how highly ranked the university was. I suspect that he found it difficult to determine such rankings because American and Japanese educational systems operate on such different principles.

I first met Hiroshi in the fall of 2001 because he, like Daniel, the subject of chapter 4, was taking CS 661. However, because he was a visiting scholar, and not a regularly matriculated graduate student at the time, he did not take the course for credit even though he prepared a formal presentation and wrote eleven formal reviews – the same amount of work that others who earned credit

in the course did – and even though Professor Palsberg, the instructor in the course, evaluated his work as being at the same high level as the other course participants who passed the class, he did not earn graduate credit for taking the course. My impression of Hiroshi at the time was that he was a young man who took his studies quite seriously. However, he makes a fairly firm distinction between work time and family time and, generally, goes home to his family around five pm on school days.

Hiroshi is married and has a young daughter, Ericka, just under two years old at the time of this writing. His wife is Japanese and he speaks Japanese at home and English when he is in the lab and around campus. Hiroshi told me that he feels he is not well integrated with the local Japanese community. He and his wife speak Japanese at home, but neither of them have very many Japanese friends. This may perhaps be due to the fact that there are not very many Japanese families in the community and because Hiroshi's studies and his responsibilities as a research assistant mean that he does not have very much free time.

All three participants in this study told me several times that they did not think that they wanted to move back to their country. For Daniel and Adam, the subjects of chapters four and five, respectively, this reluctance was primarily economic. They both were fully aware that scientists, researchers and researchers, particularly those working in universities were not well paid. Hiroshi told me several times that he did particularly want to return to Japan once he

finished his graduate studies in the United States; but his reasons for this reluctance were of an entirely different sort than the ones Daniel and Adam had.

Hiroshi has something of an ambivalent attitude toward living in Japan. He told me that, once he finishes his PhD, he would rather find a research position in the United States than return to Japan. Perhaps the biggest reason for this is his distaste for Japanese work habits. According to Hiroshi, most people in his lab in Japan stayed and worked until very late at night on a regular basis whereas he preferred to leave earlier than most.

He told me that he likes the work ethic of the ABC lab because it is a place where people work hard, but they also have a sense of personal time. If there are no important deadlines, people feel free to take breaks during the day to have a coffee and a conversation – something Hiroshi said would have never happened in his lab in Japan.

But there are two other reasons why Hiroshi says he does not want to return to Japan. One is that he finds the hot and humid summer to be unbearable. He finds the Indiana summers much more tolerable. The other reason is perhaps more significant. Several years ago, Hiroshi's father died. Since he has only one parent still living in Japan, he feels less of an emotional connection with his country than he might if both of his parents were still alive and living in Japan.

The next section describes some of Hiroshi's experiences learning English.

3.3 Learning English

Hiroshi began learning English in junior high when he started on the university education track. Unlike students in American schools, Japanese students are expected to make a commitment and decide whether they plan to attend college or not by the beginning of junior high. Asking people to make such a serious commitment when they are barely teenagers is, as far as I can tell from talking to Hiroshi, part of the Japanese system in which unrelenting pressure is put on people to find their place in the hierarchy beginning in junior high. Conformity and being a team player are valued highly in the country.

Continuing with a description of Hiroshi's experiences learning English, as a university student, Hiroshi took two years of English classes with the uninspiring titles English I and English II. He referred to the first of these courses as "sort of [a] mass production course" because each section of the course in the entire university used the same texts and the teachers varied little in their classroom methods. While he never told me that he disliked the course, he certainly never said anything positive about it either.

The next year, in English II, Hiroshi said the materials were more dependent on the teacher. The course he was assigned to required students to read quite a bit, including one book about Shakespeare. He found the book extremely challenging, primarily because it was filled with unfamiliar vocabulary, most of which he was unable to find in any available dictionaries. In his words, "that was horrible."

At the end of the year Hiroshi was required to pass an exam to receive credit in the course. His only response to the exam as he reflected back on it was to say, “at least I passed it.” He was not very fond of the course saying, “I was not good at that.”

In both of the English courses he took in the university and in the English courses that Hiroshi took in high school and Japan, the curriculum was a grammar-translation one with a heavy emphasis on rote memorization of grammar rules and vocabulary. Hiroshi told me that there was little emphasis on speaking or listening. This is in marked contrast to my own experiences as a teacher of English as a foreign language in which the notion of communicative competence was considered to be the most important goal within the program.

Because his teachers placed so little emphasis on speaking, listening, and communicating, Hiroshi tells me that he had a difficult time figuring out what to say when he first came to Purdue University. Even now, four years after arriving here, Hiroshi still experiences trouble understanding exactly what some people say and sometimes finds it difficult to choose the right word or expression to communicate what he is thinking. As will be seen in section 3.5, these troubles with spoken English have some interesting effects that I certainly would not have predicted.

3.4 Choosing a Field of Study

According to Hiroshi, in Japanese universities, one does not declare a major when first enrolling in a university. Hiroshi said that, half-way through his

second year as an undergraduate he was asked to declare a major. As will be seen in chapters four and five, this situation is very different than universities in Poland and Romania where Daniel and Adam, the other two participants in the study, earned their undergraduate degrees; both Daniel and Adam applied directly to the department they wanted to study in.

When Hiroshi was asked to declare a major, he chose CS. Curiously, he told me that he “does not know why he chose CS. It just looked interesting” because of the exposure he had had to programming languages in a general education course all the students in the university were required to take. However, he says that his knowledge of programming languages was quite superficial and the time and he told me he is still uncertain why he chose CS, as opposed to some other academic discipline.

Hiroshi told me that, in contrast to his perceptions of American CS classes, teaching is not standardized in Japan. All of the classes that he took as a graduate student after completing his MA thesis were seminar classes in which he was expected to read technical papers. All of the papers were in English, and Hiroshi found this reading to be quite difficult. Hiroshi told me that he thought his English reading skills were good; what he struggled with was understanding the concepts the papers talked about.

Hiroshi said that, after he started the PhD program at Purdue, he realized that he had a very different educational experience than most of his cohorts. In Japan, there are no survey courses designed to give students a broad overview

of a particular area of CS such as networking or databases. When I asked Hiroshi how he felt about his background, he told me that he does not feel inferior, but he has many memories of having to struggle to understand concepts on his own rather than having them systematically explained in lectures and reinforced in homework and programming assignments, which is the way most of his cohorts learned CS. He also feels that he has a very deep knowledge of some concepts in his area of programming languages, but he knows very little about some areas like networking.

Because of his perceived lack of a broad knowledge of the field of CS, Hiroshi toyed with the idea of taking a couple of undergraduate courses in areas he knew less about. However, this was impractical. As can be expected, his graduate courses, his work in the ABC lab, and his responsibilities as a new father made him realize that he did not have enough time to take any courses that would not fulfill graduation requirements.

In the next section, I describe the experiences Hiroshi had as he learned to read and write in English.

3.5 Learning to Write

Unlike the Roman alphabet, which is the only alphabet used by readers and writers in the United States and most of Europe, there is more than one writing system in Japan. The two main systems are *Hiragana* and *Katakana*. Both of these writing systems are syllabaries in which a character represents a syllable, in contrast to the roman alphabet where a symbol, general, represents

one sound. There is another pictographic writing system used in which there are a number of Chinese characters used in written discourse in Japan; these characters are called *Kanji*. Japanese people also learn to use western characters from the Roman alphabet, which they call *Romanji*. All four systems are used in a wide variety of domains in Japan, making it crucial for children to learn all of them in school.

Hiroshi told me that he began, like most Japanese children, by learning *Hiragana* as early as kindergarten. He started learning *Kanji* in elementary school; the Japanese Ministry of Education had a list of which symbols were to be learned in each of the first six years of school. He had no particular difficulty learning any of these writing systems. Unfortunately, Hiroshi had more negative experiences learning to write in English.

Hiroshi told me that he learned to read and write English primarily as a university student during his English I and II classes. However, there was a significant gap between the English literacy skills that were taught in those classes and what he needed to know in order to read and write technical English during the rest of his time as a student at the university in Japan.

Hiroshi's most significant writing experience during his time as a student in Japan came during his last year when he was required to write a thesis in order to graduate. He decided to write his thesis on a programming language topic called mobile code because it was a topic of interest to other people he worked with in his research lab.

The thesis was in English; and this fact, combined with the fact that most of the research he needed to do required him to read technical papers in English made the task challenging. In his words, it “took a long time.” As I said, in addition to doing the work of writing and testing computer code, Hiroshi also learned how to read technical CS papers in English for the first time.

However, prior to starting his thesis, Hiroshi was able to enroll in an English language technical writing course that the university offered. The course was taught by an American computer scientist who was working for the Tokyo division of the IBM corporation. Hiroshi told me that the fact that the course was taught by a foreigner who was not a university professor was quite unusual. He found this course to be extremely valuable as he worked on his thesis and believes that the course laid the foundation for everything that he now knows about technical writing in English. Clearly, this course, even though he took it before he started writing his thesis, was an important experience that helped him finish what was the longest document he had ever produced in English up to that time.

Hiroshi took and passed an oral exam on the thesis once the work was done. The exam was in Japanese even though the thesis was written in English. Hiroshi said that he was not satisfied with his performance during the exam, but “at least I graduated.” He also expressed dissatisfaction with the content of the thesis saying, “in an objective way, it was not a great work.” However, I should

point out Hiroshi is something of a perfectionist and has told me that he has never been completely satisfied with any CS project that he has worked on.

The next section describes Hiroshi's attitudes toward reading, in both Japanese and English.

3.6 Attitudes Toward Reading

Because writing and attitudes toward writing are often considered to be closely related to reading and attitudes toward reading, I decided to learn about Hiroshi's reading practices and what sort of relationship they might have to his writing practices. Perhaps the most surprising thing I discovered is that there is a relationship between Hiroshi's reading practices, in particular, where he reads, and his experiences as a L2 learner.

Hiroshi told me he really does not read many books in Japanese. But he says when he was younger he used to occasionally read Japanese books and magazines. As far as reading in English is concerned, the situation is similar; he does not spend much time reading books or magazines. Most of the books and papers he reads are CS papers and books written in English. He is really unsure how to estimate how much time he spends on reading in CS since the time varies widely from day to day.

By contrast, Hiroshi says that his wife does go to the local public library on a semi-regular basis. Since she is not working or taking classes, aside from watching their daughter, she has much more free time than Hiroshi does. Their daughter is now about two years old. Hiroshi told me that, when she was

younger, he did read a few books about fatherhood and babies in English, but he hasn't read many of these lately. He thinks that, in terms of child-related vocabulary, his has a larger vocabulary and uses it more confidently than he does.

Despite the fact that Hiroshi spends a relatively small amount of his free time reading, he did tell me that he likes reading more than he likes drinking beer. He said that beer drinking is quite common in Japan and he thinks that people there use alcohol as a way to getting to know each other – because Japan is such a hierarchical society, people worry somewhat less about where they fit into the hierarchy when they are drinking. It became clear to me throughout the course of the study that Hiroshi has a rather ambivalent attitude about returning to Japan and that this attitude affected his reading and writing practices.

The most common type of recreational reading Hiroshi does is reading the news, most often on the Internet. He estimated that about half his reading is in Japanese and half is in English. The most common things for him to read are Yahoo's Japanese news service (<http://headlines.yahoo.co.jp/hl>) and the headlines and shorter articles from the Wall Street journal. He estimates that he spends about 20 minutes a day on recreational reading.

As far as reading aides, Hiroshi told me that he rarely uses a dictionary or bilingual dictionary to help him read although he does use one more often when writing. When he does use a dictionary, he uses a learner's dictionary. A learner's dictionary differs from most monolingual dictionaries in being designed

specifically for learners of English rather than native speakers. Such dictionaries generally include more extensive pronunciation guides (using the International Phonetic Alphabet), usage examples culled from recordings of native speakers, as well as extensive information about register (the relative formality of a given word or phrase and if it is more likely to appear in written English than in face-to-face conversations) and frequency. Hiroshi is the only person of the many L2 users in the ABC lab I have seen use such a dictionary.

When I asked Hiroshi if he works at home, he told me that he writes computer code at home but prefers to do his reading for classes and research at home because he can concentrate better there. Preferring to write in one place and to read in another place did not surprise me because I know many people who prefer to do work in a coffee shop on their dissertation but prepare for their teaching in their office. However, Hiroshi's explanation of why he prefers to do his reading at home surprised me.

Hiroshi said that this preference is partly related to the fact that people speak English in the ABC lab but he and his wife speak Japanese at home. He said that as an L2 speaker it takes more effort to speak and listen to English than it does for him to speak and listen to Japanese. This difference is more pronounced when he is tired. When he is in the ABC lab he is aware of the additional effort required for him to understand and use English; at home, when he speaks to his family, he does so in Japanese, and that takes less effort.

So, even though Hiroshi is reading and studying CS material that has been written in English, reading that material at home, in a Japanese environment, is easier for him. He said that the reason for this is related to the fact that he knows he might, occasionally, be interrupted while reading and have to answer a question. It is less mentally taxing for him to read in English at home knowing that any distractions that might interrupt his reading would be Japanese interruptions. In short, Hiroshi is better able to concentrate on his CS reading at home than he is in his lab.

I asked both Daniel and Adam, the subjects of chapters four and five, respectively, if they felt similarly, and they both said no. Daniel said that during his first year, when he was struggling with his English, particularly his listening comprehension, he thinks he would have done similar things. However, Daniel no longer struggles so much with his English and does not worry about what language any interruptions may occur in. Adam also said that he did not worry about what language his interruptions might come in. He said that he preferred to do his reading during the day in places with windows that let in plenty of sunlight, but it did not matter if the people around him were speaking Polish, English, or Spanish – the three languages he was most comfortable speaking.

3.7 Discussion

This is the first of the three main chapters in this dissertation, each of which focuses on one of the three participants: Hiroshi, Daniel, and Adam. Hiroshi is the person who is the farthest from finishing his degree and becoming a more

independent researcher. By contrast, Daniel, the subject of chapter 4 and Adam, the subject of chapter five, are considerably more advanced in their studies than Hiroshi. Daniel was more or less done with his course work and, although he had not started his dissertation by the time the study ended, he was spending a lot of his time on more independent research. Adam was the most advanced of the participants. He completed and defended his dissertation before the study was done.

Because it was necessary for me to stop collecting data at some point, my research with Hiroshi stopped while his life as a writer continued on, although I have maintained contact with him. I do know that he has had two significant writing experiences since then: a research internship and writing and defending a qualifier paper.

In the summer of 2004, he and his family went to Silicon Valley, California where he had a successful research internship experience with Sun Microsystems. As will be seen in chapter 5, Adam also had two research internships at Sun and is now employed as a full time researcher there. Hiroshi worked in a different research group than Adam, but the two groups were close both in terms of location within the building and in terms of topics that they were researching.

Hiroshi has recently published a technical paper based on his work at Sun. This was an in-house technical report that was reviewed by his manager there, who shares credit as an author, but it was not sent for external peer review.

However, this is a significant publication that will “count” for Hiroshi when he later looks for a position as either a researcher in private industry or as a scholar within the academy. In addition, this paper was probably the first independent one that he wrote that was not required for a course or supervised by his advisor, Professor X.

The paper was based on work that Hiroshi did when he was at Sun, but he had only completed a draft when he left California in August of 2004 to return to Purdue. I asked Hiroshi about how he felt about the work and the writing in September of 2004. He modestly told me that “it’s not embarrassing. I’m sure I did something.” However, Hiroshi also pointed out that his manager gave him a written evaluation of his work, and that evaluation was quite positive. Hiroshi finally finished the paper in August of 2004 and now lists the paper on his CV.

The second significant writing experience that Hiroshi had since leaving the study was writing and defending his second qualifier paper. In Purdue’s CS department, PhD students are required to pass a series of written examinations, given in conjunction with core courses in the curriculum, but those exams are above and beyond the course requirements. For the second qualifier, each PhD student is required to write and defend a research paper under the direction of a faculty member. When the student and the faculty member agree that the paper is ready, the student presents and defends the paper before a committee consisting of the advisor and two other faculty members. The paper is called a

qualifier because, once this paper has been successfully defended, the student is considered qualified to write his or her dissertation.

Based on the success of these two recent writing experiences, and on the positive comments Professor X has shared with me, I think it is accurate to say that Hiroshi is well on the way to becoming a more independent and successful researcher and writer.

As can be expected, like all of the participants in this study, the fact that Hiroshi was an L2 writer had a strong effect on his experiences as a writer. However, Hiroshi seemed to be more strongly affected by being an L2 writer than Adam and Daniel, as will be seen in the next two chapters. This effect was most strongly seen in his attitudes toward reading, although it permeated nearly every discussion I had with Hiroshi during the study. There are two possible reasons for this. One is that, because of the way English was taught in the courses that he took in Japan, Hiroshi had considerably less exposure to spoken English, or any other spoken L2, than Daniel and Adam did before coming to Purdue. A second explanation for this lack of confidence in English and in writing was probably because Hiroshi was considerably less advanced in his studies than Daniel and Adam were.

However, the last time that I talked with Hiroshi I began to notice an improved sense of confidence when he described his successful experience as a research intern at Sun and his successful experience defending his second qualifying paper. I certainly can not predict the future, but, when I look at the

accomplishments that Hiroshi has had since my study started, I am optimistic about his future as a writer and as a researcher.

3.8 Chapter Reflections: My Experiences as an Adult L2 Learner

Because many of Hiroshi's experiences that I described in this chapter were filtered through his experiences and attitudes toward those experiences as an adult L2 learner, I thought it would be useful to reflect on my own experiences learning Polish, the L2 that I have the most experience with.

I must begin by acknowledging that, to date, I have been far from successful in being able to speak or write in Polish. The only writing I am able to do successfully in Polish is filling out the simplest of forms. But even these can be too difficult for me. I once had to ask someone what goes in which box when I wanted to write a check to withdraw money from the bank. And my spoken Polish skills are, at best, survival skills. Nevertheless, I have been able to use Polish to accomplish a few important tasks. The rest of this section focuses on one task that I was able to accomplish with my spoken Polish even though I lacked most of the appropriate vocabulary to do so.

I spent three years living in Poznan, Poland where very few people knew even a word of English. I spent most of my time working at the university English department and interacting with people who were either native speakers of English or who were extremely fluent Polish speakers of English. However, I did use Polish, even if only for rather specific purposes, almost every day I was there, including buying things in stores.

Most stores in Poland, at least at the time I lived there, were not self-service stores; they keep most of the merchandise behind the counter and the customer needs to ask the clerk to get the things for him or her. This, of course, means that the customer needs to be able to speak Polish, unlike self-service stores where one does not need to ask someone in selecting merchandise. As should be obvious, being required to ask for things when going to a store, means that L2 speakers, like myself, needed to speak Polish in order to buy things at the store.

I went to stores almost everyday to buy household items, but I generally limited my purchases to food and developed a reasonable food vocabulary and learned the grammar I needed to know to complete a transaction. One day I decided that I needed something a little out of the ordinary, and I did not want to wait until the next day when my wife would have time to buy it for me. I decided that I wanted to be brave and to figure out how to accomplish this transaction on my own.

The thing I wanted to buy was some rubber tubing to use in the kitchen as a siphon. I knew that I could probably buy the right sort of tubing at a pet store since it is commonly used in aquarium filters and air pumps. However, the problem I knew I had was that I had no idea what the word for tube or tubing was. But I did not let this stop me.

I found the store easily enough and was accosted by a clerk who wanted to know if he could help me. Improvising as best I could, I told him that I wanted a

straw; this was the closest word to tube that I could think of. As can be expected, the clerk did not know what to think of my request. He had a puzzled look on his face for a minute and then asked me if my straw would be for a dog or a cat. When I replied that it would be for a fish, he really looked puzzled. And, then, a few seconds later, he said that he thought he knew what I might be asking for. He looked under the counter and pulled out two meters of rubber tubing. It was, indeed, what I was looking for. I bought it and brought it home.

Later that evening, over dinner, I shared my story with my wife and the woman who was sharing the apartment with us at the time. They both got a big laugh out of the experience. In addition, they both told the story to friends several times after that to show their friends that I did not let my limited vocabulary stop me from doing what it was that I wanted to do in Poland. Every time I heard that they had retold the story, I was proud.

I think there is a connection here with the experiences of Hiroshi. He has, on several occasions, expressed concern about how there was a considerable gap between what he would like to be able to do and what he was able to do as an L2 speaker or writer. However, he also was able to recall several experiences in which he, before he started the experience lacked confidence, but, later, saw that he was able to use his language skills to do the task in question. To give one example, Hiroshi was not very impressed with the work that he did on his MA thesis, but he did accomplish it. As he moved on in his research career, he has

been able to accomplish more and more things. I am confident that Hiroshi will continue to grow and mature as a researcher and writer in the coming years.

The next chapter is about Daniel, the second of the three participants in this study.

CHAPTER 4

DANIEL

This chapter is about the literacy experiences of Daniel. It is divided into eight sections and is organized as follows. Section 4.1 describes Daniel and his background. Section 4.2 is about Daniel's experiences learning English. Daniel's experiences that led to him gaining confidence as a writer and researcher are the subject of section 4.3. In section 4.4, I describe how Daniel developed his research interests. The next section, 4.5, is about the difficulties Daniel has had trying to publish two papers in refereed journals. Daniel's experiences that led to him leaving the study are the subject of section 4.6. I end my discussion of Daniel in section 4.7 by discussing the what can be learned from Daniel's experiences. Finally, I end the chapter with some reflections on where my own research interests came from.

4.1 Description of Daniel

Daniel (a pseudonym) is a Romanian man who comes from a family where both literacy and science are highly valued. Both of his parents live in Bucharest. His father is a computer engineer and computer scientist. In fact, Daniel's father came to Purdue's CS department as a visiting researcher a

couple of years ago. His mother works in the publishing industry and helps to produce science textbooks. In addition, Daniel tells me that his parents have recently become frequent theater goers. He says that when they talk to him on the phone, they often tell him about the most recent play that they have seen. His parents are clearly people who value education, science, and the arts.

When I come to interview him, Daniel is usually wearing his trademark short white shorts and T-shirt along with a pair of colorful tennis shoes. Daniel does not like the glare from his 17-inch Dell flat-panel monitor and, so, usually wears dark wraparound sunglasses that he takes off as soon as he walks away from his computer.

Daniel is usually quite upbeat when I talk to him and likes to pepper his speech with short jokes, even when he is describing an unpleasant experience. For example, he once joked that the senior professors were the masters and he was just a pawn when he was describing having a conference paper he submitted rejected by a reviewer who was clearly a senior professor.

Like all of the participants in this dissertation, Daniel is one of Professor X's graduate students and works in the ABC research laboratory. Daniel was the first PhD student professor X agreed to supervise at Purdue.

Daniel's recent work that he has shared with me has focused on *ad hoc* networks, although his webpage says that he is interested in distributed computing, including both *ad hoc* and peer to peer networks, and in providing secure communication for applications running in such environments.

An *ad hoc* network is, according to the *Wikipedia* online encyclopedia “a self-configuring network of mobile routers (and associated hosts) connected by wireless links—the union of which form an arbitrary topology. The routers are free to move randomly and organize themselves arbitrarily; thus, the network's wireless topology may change rapidly and unpredictably (*Mobile ad-hoc network*).” This network may consist of a variety of different devices, such as two-way radios, cellular phones, or laptop computers with wireless cards (when there are no wireless access points present). Because the devices in the network are usually moving, developing models to accurately describe the behavior of such networks can involve a considerable mathematical modeling and computer simulations.

When I walk in and see Daniel working, it is not unusual to see him drawing a number of circles and lines trying to accurately determine transmission and reception ranges for devices in a number of possible scenarios.

4.2 Learning English

As can be expected, Daniel spent most of his life as a student reading and writing in Romanian. His first *foreign* language was French, which he says he learned mostly from his father. He says that he thinks his vocabulary in French is better than his vocabulary in English, although he is reluctant to speak it to Jacques, the native speaker from Paris who works in the same lab, or to Professor X, who earned his PhD in Geneva, Switzerland and lived in that country for many years.

Daniel's first real experience with having to use English came when he was an exchange student in the Netherlands during his last three months as an undergraduate shortly before coming to the United States. It was then that he was forced to use English as a language of wider communication since neither his native Romanian nor his French were of any use to him there. He told me he was quite amazed that so many people there spoke English, although he says that he had trouble "making contact with the natives." In addition to learning to use English to communicate, Daniel also says that this trip taught him how to depend on himself. He says that these were two very important skills that he needed to use when he came to study at Purdue.

Daniel had a Romanian roommate for his first three years at Purdue. Radu, Daniel's former roommate, came from the same university and was also a CS graduate student. Radu is no longer a PhD student, having recently successfully defended his dissertation. When I asked Daniel about Radu, he told me that Radu was a significant factor in helping Daniel smoothly integrate in the Purdue CS community.

In August of 2004, Daniel went back to his country to get married and then moved his new wife into an apartment in West Lafayette. And, so, Daniel has gained a new Romanian-speaking roommate. He now spends a fair amount of his free time helping her understand the culture and practices of the people of West Lafayette. Daniel was, until recently, the president of the local Romanian society at the university. Daniel has led a bilingual life with a need to

communicate in English in his laboratory and in his classes, and Romanian in his non-working hours, the entire time he has lived in West Lafayette.

He told me that he was very pleased both to be married and to be able to continue speaking Romanian at home. "I'm really happy that that's the case. It would be more difficult [otherwise]. Whenever you wake up, you have to switch to English. For me it would be difficult [to speak English all day every day], at least for a year or two" (interview November 11, 2003).

Daniel describes his first semester at Purdue as tough. In addition to the hard work he had to do in his classes, he had a hard time understanding the spoken English that people were using around him. However, he now thinks of the difficulty he had understanding people as increasingly distant memories of when he first started at Purdue. Once he started taking classes and working with other researchers in the ABC laboratory, his listening comprehension quickly improved.

As was seen in chapter 3, Daniel, like Hiroshi, has something of an ambivalent attitude toward being a non-native speaker of English. Like Hiroshi, he feels more comfortable being able to live in a home environment where his first language is spoken. In addition, he has spent a good amount of his free time participating in activities with other members of the local Romanian community where he speaks Romanian and interacts with people from the culture he grew up in.

However, unlike Hiroshi, Daniel feels quite comfortable with using English

to communicate in his professional life. He speaks English when talking with researchers in the ABC laboratory, he reads papers and email messages written in English, and he writes email messages, papers, manuscript reviews and other texts in English. Certainly, using English with a sense of confidence is not a sufficient condition for becoming a CS teacher and researcher, but I believe it is a necessary one.

To continue with the theme of confidence, the next section describes some experiences that helped Daniel gain confidence as a writer and researcher.

4.3 Gaining Confidence as a Writer and Researcher

One of Daniel's first significant literacy experiences came in his first year when he took a seminar on mobile code with Professor X, who later became his major professor. In the course, there were a number of technical papers selected for close reading, and each student was asked to formally present some of them – the way seminars are usually organized in the CS department.

Daniel was asked to present two papers on Lambda Calculus, a topic he knew nothing about up until that point. So Professor X gave him a crash course in the subject, and Daniel spent hours learning more about the topic and preparing the presentation. However, the day of the presentation, he froze in front of the entire class and found himself unable to talk. (This talk would have been given without any script or written notes, as is the custom at all CS talks I have observed in Purdue's CS department and in the ABC laboratory.) He told me he still has vivid memories of feeling like his jaw was frozen in place.

However, Daniel did eventually finish his talk as Professor X calmly assured him that he was all right. His second presentation in the course went better, and, the next semester, he presented a paper in another course and showed even more improvement.

There are three reasons that might explain why Daniel had so much trouble with this presentation. One reason is that he still lacked confidence in his English, a subject I discussed in section 4.2. A second reason is that he had not given many formal presentations before this one. Finally, the fact that he needed to familiarize himself with a new and challenging area in CS certainly added to his difficulties. Despite the fact that Daniel still has vivid memories of this presentation, he assured me that this was an episode in his past.

I would count this presentation as one of Daniel's most significant literacy experiences. It was at this point that he began to develop the confidence necessary to present the paper, to recognize that he really did know the material better than anyone else in the class, and that he had presentation skills good enough to help the rest of the class understand it.

In our interviews, I have seen a similar pattern several times, although none quite as extreme as this one. In each of these stories, Daniel describes how he thought he was unable to do something, but later discovers that he can and comes to consider this to be among the skill sets at his disposal as a writer and CS professional.

Among the skills that Daniel now has at his command is that of a

competent reviewer of technical papers in his area of CS. Daniel told me that he learned to be appropriately cruel when he took CS 661. Daniel still remembers two things that Professor Palsberg told the class about reviewing papers:

1. Professor Palsberg said that when he reads papers he is reviewing, he starts by assuming that he will reject the paper. If he is convinced, as he reads, that the paper is cogently written and appropriate for the venue, then he might change his mind. He never assumes a paper could be published unless he feels the content of the paper has convinced him otherwise.
2. Professor Palsberg became quite concerned relatively early in the course when students began coming to his office hours telling him “they thought the paper [they were reviewing] was excellent and there was nothing in the paper to criticize. Professor Palsberg ...[told the class] there is always something a paper can be criticized for, whether it be a lack of scientific motivation, a lack of industry motivation, problems with the proofs, problems with the language, or any number of other potential problems” (Palsberg & Baxter, 2002).

Clearly, Professor Palsberg has high standards for papers in his field.

Daniel’s ability to review papers has not gone unnoticed. In our final interview in December of 2003, Daniel talked about the writing that he was doing; and Daniel was writing reviews of three papers his advisor had given him.

(Asking one’s graduate student to review papers, when the advisor thinks the

student is ready to do that, seems to be common among the faculty I have met in CS.) His advisor, Professor X, gave him three papers to review. He put them on Daniel's desk with a note on them saying, "you're closest to the subject." Professor X certainly believes that Daniel has at least some of the skills and abilities necessary to be a CS writer and researcher.

The next section discusses the possible sources for Daniel's research interests.

4.4 Research Interests

Curiously, it is not entirely clear where Daniel's interests come from: from his advisor, from his two internships at Motorola, from Professor Z, another professor that Daniel has begun working with, or perhaps from an amalgamation of these different sources.

Daniel tells me that he is confident about what his research interests are, but he is reluctant to articulate his interests. This reluctance may be because he does not have many publications in any particular area yet. This distinction Daniel made between articulating and knowing came as something of a surprise to me.

One of the most significant events that led to Daniel's current work in ad hoc and peer-to-peer networks is his internship experience at Motorola in suburban Chicago. But it is not entirely clear whether Daniel's current work and interests came from his experience there or from his experience working with Professor X. When I asked Daniel where his research interests came from he

told me that when Professor X came to Purdue he had two areas of interest: programming languages and mobile agents, and that Professor X pushed Daniel to keep working in mobile agents while Professor X moved more into programming languages. To provide some context, a mobile agent is a piece of computer software that is able to autonomously migrate (move) from one computer to another and continue its execution on the destination computer. It is an important area within the networking area of CS.

To prepare for his second qualifying exam – the last formal requirement for CS graduate students at Purdue before beginning their dissertations – Professor X asked Daniel to read 20 or 30 papers on Tuple spaces. Daniel became interested in an area of this Tuple space research known as ‘Core LIME’. LIME is an acronym for Linda in Mobile Environments. Linda is a shared memory computing model developed by David Gelernter and Nicolas Carriero at Yale University in the mid 1980's. While I suspect that the model was named after a person close to one of the developers, as is common in CS, I have been unable to confirm this.

Daniel discovered the specific topic for his paper when Professor X asked him to formalize LIME and he could not do so. The bulk of his paper was devoted to trying to solve some of the problems he had found in trying to formalize the concept as well as add some security features.

Daniel expanded his interests in mobile agents during two summer internships at Motorola. He described his work experience there as “basically

they were paying me to read papers and learn things.” He found it a stimulating environment for that reason and because he was able to take up much more of a person’s time than he has been able to in Purdue’s CS department. However, he had a particular dislike for the corporate culture he found there, which he saw as an attempt to dictate to people the way they should lead their lives.

By contrast, when I asked Professor X about why Daniel was interested in the things that he is, he thought it was largely because of Daniel’s two internships. It was at this point that I realized that Daniel and his advisor have two different opinions of where Daniel’s research interests come from. When I began my study, I never expected to see such a discrepancy.

No matter where his research interests came from, Daniel has isolated himself. He is the only person in his lab not working on programming languages and systems. In addition, many of the people in Daniel’s lab supervised by Professor X are working together on a large software engineering project. Daniel, by contrast, works alone. He has had a hard time finding people who are willing to work with and advise him. However, there is a bright spot. Daniel has recently started working with Professor Z, a person who specializes in networking. Daniel thinks that Professor Z has helped him tremendously, although, in Daniel’s words, “I am always chasing him,” referring to the fact that Professor Z can be difficult to find when he needs him.

4.5 Moving Two Papers Past the Gatekeepers

The last several interviews that I did with Daniel have focused on two

papers that he has sent to conferences for possible publication. In CS, at least in the programming languages and systems area, people send in whole papers to be reviewed for conferences, not just abstracts. Daniel has been working on two different papers and submitting them to top-level conferences. Each of these conferences accepts approximately ten percent of the submitted papers.

One of the things that has concerned Daniel about the submission process is the perceived old boy network. Each conference has a program committee that reviews all the papers and then meets to recommend which papers should be put in the program. It is important to clarify that these papers are not read blind – the identity of the authors is known to the reviewers, although the reviewers are anonymous. Daniel found out that, at one conference he submitted to, there were 281 papers submitted, out of which 27 were accepted; of those 27, three were written by one person on the program committee. While he is dissatisfied with the process, Daniel also thinks it is human nature that people tend to be more interested in papers written by people they know than in papers written by people they do not.

Professor X recently told Daniel that he's probably been submitting to conferences that are too competitive, referring to the ninety percent rejection rate for submitted papers. At first Daniel's reaction to this, as he told me, was to ask "what, don't you think my work is good enough?" But he later realized that he needs to start getting out of Lafayette and meeting people in his area. As he said, "right now I am working hard but I am not doing any traveling."

Daniel is the only one of the three participants who chose to withdraw from the study before I finished it. The next section attempts to explain why. In addition, the section also discusses his attitude toward Romanian, his L1.

4.6 Daniel's Attitudes toward his L1 and Leaving the Study

A number of changes occurred in Daniel's life in the summer and fall of 2003. He moved to a new apartment in the fall of 2003 before he went to Romania to get married and bring his wife back to West Lafayette. Prior to that, for his first four years at Purdue, he lived in another apartment with a Romanian roommate who was also a PhD student in computer science. He spoke Romanian at home when he lived with that roommate. When I asked him about his attitude toward using his L1 at home, as can be expected, he told me that he was quite glad he did. He thought that not having to speak in an L2 at home and having a roommate who shared a common culture made his first years of graduate study abroad a much less stressful experience than it might have been otherwise.

Now that Daniel has gotten married and is living with his wife, he continues to speak Romanian at home. As I mentioned in section 4.2, Daniel was happy to live in an environment where he was able to use English at the university and Romanian at home.

In an interview on November 11, 2003, Daniel began letting me know that he was growing uncomfortable with talking about his work. He told me "Actually, something happened with my research, and I really don't want to talk about it."

He went on to say,

I don't want to talk about my research or future plans, or anything like that.

I feel very vulnerable. That's why, in a sense, I avoided meeting. I didn't really feel in the mood for discussing it (November 11, 2003).

What turned out to be our final interview took place on Dec 2, 2003. On January 22, 2004, Daniel sent me this email:

The problem is that I really don't feel so confident this time of the year so it's quite difficult for me to discuss about my progress and evolution. I would like to postpone our meetings until things start going. So have a kind thought for me. Thank you (January 22, 2004).

I talked informally to Daniel several times since that message, but he never re-entered the study.

4.7 Discussion

Daniel has struggled with finding his research interests and an appropriate mentor to supervise his work. In a number of ways, Professor X is a very good person to work with – he is quite concerned about making sure that his students actually succeed. But he is also working in a different area than Daniel is, and there are limits to how helpful he is able to be. Daniel has found Professor Z, but Daniel seems quite ambivalent about him. On the one hand, Professor Z has been very helpful to Daniel and is genuinely concerned that Daniel's work be of the highest quality. On the other hand, Professor Z has a number of demands on his time, and Daniel sometimes finds it difficult to find him when he needs his

expertise.

It is worth pondering where, exactly, people develop their research interests. Daniel is an extremely reflective person who was unable to pinpoint where his interests come from. In academia, people devote their lives to researching their ideas, but I have seen very few studies in either first language composition or L2 writing that discuss how people developed their research interests. I, for one, would like to see more research on this issue. In the chapter reflections that follow this section, I describe how I developed my own research interests to offer a contrast to what I presented in the body of this chapter.

I think it is important to realize that, in a number of ways, Daniel is doing well. He has found a position in a research laboratory where English is the primary language, and working in this position has definitely improved his academic and informal English. The students and the professors associated with the ABC laboratory take a genuine interest in seeing that everyone who works there succeeds academically. Finally, Daniel has managed to live a life with two languages quite successfully. He uses and keeps up his English during his working hours and does the same for his Romanian during his non-working hours. There are many L2 writers who would be jealous of Daniel.

However, there can be tremendous disappointment in academic writing. Daniel has really struggled trying to move his manuscripts past the gatekeepers and reviewers and into print. And this struggle has really begun to affect him. People like to focus on success, but failure and disappointment are also part of

academic writing.

4.8 Chapter Reflections: Where Do Research Interests Come from?

As this chapter has shown, Daniel spent a great deal of time devoted to finding and developing his interests in *ad hoc* networks and mobile agents. Even though I spent a considerable amount of time trying to determine why Daniel ended up researching and writing about these topics, I did identify several sources for these interests, but I was never able to come up with a definitive answer.

As I was writing this chapter, I realized that, like Daniel, there was a complicated series of events and a number of key individuals who helped to shape my research interests. In the rest of this section, I describe those people and events in order to elucidate the origins and development of my research interests. I begin with entering graduate school.

When I began my graduate studies at Wayne State University, I was required to write a thesis. I wrote one on a topic in phonology on the structure of affricates, partly because I found a faculty member willing to devote her time. However, that was not the first idea I had. My first idea was a study of police discourse at the Wayne County Jail because of my work there. I never pursued that idea, partly because there was a ban on recording devices in the building that I would have to overcome. But another reason for picking a different topic was that it allowed me to separate my work life and my school life. Working at a jail with criminals and police officers involved thinking about poverty, crime,

alcohol and drug abuse, weapons, and crime on a regular basis. I found that studying linguistics in the evenings was a pleasant distraction from those thoughts; doing linguistic analyses on police and jail discourse might have had a negative effect on the balance I had found in my life.

When I finished my M.A., I started teaching at a university English department in Poland. A significant part of that teaching was the teaching of writing to Polish students of English. I went to the library at some point during my first semester and started doing some reading in order to try and become a better teacher. There were two books I found that had an impact on me – the first was Murray's *A Writer Teaches Writing* (Murray, 2003); the second was Kroll's *Second Language Writing* (Kroll, 1990). Murray's book outlined, in more detail than I thought possible at the time, what was involved in teaching the process of writing to students. Kroll's book suggested to me that there was an area of inquiry known as L2 writing that I had not been aware of before

Over the course of that first year, as my teaching and thinking evolved, I began to realize that I wanted to become a researcher in addition to being a teacher. It was possible for me to pursue a Ph.D. in Poland, but I knew that would be difficult because it was an educational system that was completely foreign to me. I went home in the summer of 1998 and decided to do some research on graduate writing programs.

One of the key items in my decision was a meeting with John Swales who suggested that I apply to Carnegie Mellon, Northern Arizona, Purdue, and Iowa

State. Curiously, he did not suggest that I apply to the University of Michigan's program. In his words, I would have a hard time finding a writing scholar in the English department who had the linguistic sophistication necessary to study second language writing. I applied to Northern Arizona (accepted), Purdue (accepted), and Iowa State (rejected). I then had to decide which of the two offers to accept.

In September of 1999, I went to the languages for specific purposes forum held in Prague. It was there that I was wondering if I should accept the offer from Northern Arizona or Purdue. After meeting Tatiana Yakhontova, a scholar from the Ukraine who had studied with Swales, I decided Purdue was a better place, partly because I would also be able to work with Professor Graham Smart and Professor Tony Silva. I did have several meetings with Graham, but by the time I started my dissertation he had left Purdue for another place. Professor Silva, on the other hand, did not leave Purdue and was happy to accept me as one of his students.

The last time I saw John Swales was at a party after Chris Tardy's (a graduate student colleague) dissertation defense. John came to West Lafayette because he was on her committee. When John saw me he was curious to know how I was doing. In his words, "my spies tell me you are making good progress on your dissertation." He also asked me why I had moved away from discourse analysis.

Upon reflection, I realize that, as part of completing my course

requirements, I took five different research courses: statistics I and II, research design in language and linguistics, critical qualitative methods in composition studies, and seminar in ethnographic analysis. The readings and discussion in the last two courses impressed me as valuable ways to approach the study of L2 writing.

When Professor Weiser (the director of composition at Purdue University at the time) asked if I would be interested in working with Professor Palsberg in setting up a writing intensive seminar in the CS department, I suspected that the students might make good research subjects. After the class ended, and I had a chance to get some distance from the experience and think about what topic I might write about in my dissertation, I thought that I would be very interested in learning more about the writing experiences of some of the students I had worked with. I knew that I was interested in both their writing and their attitudes toward writing. I decided that the best way to answer the questions that I wanted answer in my dissertation would be to use an ethnographic approach, like I had been exposed to in my two qualitative research classes with Professor Myrdene Anderson and Professor Patricia Sullivan. While I can not predict the future, I believe that I will continue to be interested in the affective dimension of L2 writing in future research projects once this dissertation is finished.

Chapter 5

ADAM

5.1 Overview

This chapter is organized as follows: section 5.2 presents a description of Adam, section 5.3 describes Adam's significant teachers and writing experiences, section 5.4 is about his three internships, section 5.5 describes Adam's attitudes toward reading, section 5.6 describes Adam's email practices, Adam's experiences writing his dissertation is the subject of section 5.7, and, finally, the chapter ends with reflections on my own literacy autobiography.

5.2 Description of Adam

Adam is originally from Poznan, Poland, the same city I taught in when I lived and worked in Poland. In fact, the physics department where he worked and studied before coming to Purdue was two blocks away from my apartment, on the same street that I lived on. However, he left Poznan to come to Purdue before I moved to Poland, so our paths did not cross before I began this study.

He earned two master's degrees (one in physics and one in math and CS) and started a PhD program in physics before moving to West Lafayette, Indiana and earned a PhD in CS. Adam recently graduated from Purdue's CS

department; he defended his dissertation in December of 2004 and moved to California shortly after that to take a position as a research scientist at a large computer company in Silicon Valley.

Adam is stockily built and has somewhat wavy blonde hair that he usually wears close cropped. Like most of the graduate students in the CS department, he prefers casual clothing; however, even on the hottest summer days, I never saw him wear shorts.

Unlike Daniel, Adam's parents are not scientists or researchers. When I started one interview by asking about the role that writing played in his family and home life, he said, "there's really not much to tell." He told me that he loves his parents, but that reading and writing were never a big part of their lives at work or at home. He jokingly told me that his parents "work for one of the three remaining agricultural cooperatives left in Poland" that produces jam (interview February 19, 2003). (There were many more of these cooperatives up until the eighties when they were disbanded along with many other Soviet inspired communist institutions.)

Despite the fact that his parents had little formal education, Adam was admitted to Adam Mickiewicz University in Poznan, Poland. He credits an excellent high school education for setting him on the path to a university education and a thirst for learning. In Poland, at least when Adam was a high school student – the educational system has changed in many ways since then – there were two types of high schools: vocational schools and university

preparation schools. The latter type of high school takes their role of preparing students for university quite seriously, at least according to Adam.

Adam is, in many ways, an ideal informant. As one person in his lab said, he has an ability, when explaining things to you, to be able to estimate precisely how much you understand and what you are interested in and direct all his answers accordingly. Given that I have very little background in computer science, Adam's explanations of various projects that he has worked on are right on the money when it comes to giving me the broad overview without killing me with technical details that I would not be able to understand. He really is a wonderful person to work with.

The next section describes how Adam eventually became interested in a research career in CS.

5.3 Finding a Field of Study

Adam is now comfortable with his career choice as a research scientist working in the field of CS, but it took a considerable amount of time for him to find an academic home. When he was admitted to the university in Poland, he studied physics¹, but he did consider other options. In high school, he placed third one year in the national music olympics. He applied to, and was accepted at the music department in Poland, but he decided that studying music was not for

¹ In Poland, students are admitted to a particular department in a university, not to a school or the university more generally. Switching majors or fields of study happens far less often than it does in the United States, based on my observations working at a university in Poland and on my interviews with Adam.

him when he visited the department during an open house organized for candidates considering enrolling in the program.

Adam told me that a number of young men applied to the physics department in order to delay their mandatory military service. Young men in Poland were required, at least at that time, to join the army for several months shortly after finishing high school. Adam was never able to explain to my satisfaction why people would choose physics as a major if they were enrolling in the university just to delay military service, but he did tell me that, in those days at least, not that many people wanted to study physics and the entrance exam was not terribly difficult.

Even after he started in the physics program, Adam, unlike most of his peers, was curious to know what it might be like to study in another department. He even enrolled in a few sociology courses during this time.

The next section describes the teachers and writing experiences that Adam considered significant.

5.4 Significant Teachers and Writing Experiences

Aside from the intense few weeks just before exams, it appears that Adam did not do much writing during his undergraduate years, but he was required to write a thesis for each of the MS degrees that he received – one in physics and one in computer science – both were written in Polish – his first language. When describing the process of writing his first thesis, he said “that was painful. There are some people who think in full sentences; I don’t.” In fact, as I describe in

section 5.6, when I asked him about emails that he writes to the research group, he has also said that he agonizes over one and two page messages, partly because he finds it difficult to think and, then, write in full sentences.

Given Adam's attitude that writing is painful, it perhaps comes as no surprise that when he accidentally deleted the only copy of each thesis he had when formatting a computer hard drive he said, "And, actually, I don't feel bad about that." Despite the fact that I was truly surprised when I first heard Adam say this, it was not as surprising when I thought about it later. This deletion may be seen as a symbolic way of trying to erase the painful memories of the process of writing those theses.

With regard to his first master's thesis in physics, the topic was suggested by his advisor, a practice Adam thinks is quite standard in the field. He worked on an area that his professor was already working on. He described the results as useful work. He further said, "It was not earth-shattering, but I did solve a model or two." He found his advisor to be quite helpful with both the research and the writing.

Two years later he wrote a thesis to complete his MS in math and computer science. He found that experience to be very different than his physics thesis. "The CS thing was a pain. I knew nobody would read the damn thing...it was pure nonsense." He wrote the thesis over a period of about six weeks with little enthusiasm. He hinted that he may have plagiarized, or at least had a lack of

desire to do original research when he said, “the content was nothing of my invention. I thought, what the heck, no one will care anyway.”

After he finished his MS in physics he started the Doctoral program there. Because he was somewhat bored and wanted to use his free time to expand his scientific horizons, Adam enrolled in a degree program in math and CS and earned a second master’s in CS and math at the same time he was doing research for his PhD in the physics department. Although he liked his physics thesis advisor, he told me that his advisor liked to work on a very narrow set of problems, trying to mine them for as much as he could. Adam said that he felt exhausted with that area (atomic physics) and found a new advisor he had liked as an undergraduate who worked on biophysics – an area that interested him for his PhD work.

Adam ended up leaving the physics program before finishing his doctoral studies to come to Purdue to study computer science, but during his time there he did publish two papers, both in English. The first paper was published in a regional refereed journal and he was the first author, of four. The professor was especially generous with authorship because the fourth author, another doctoral student who had dropped out of the program to find a better paying job, was not even a member of the lab for all of the research. The second paper was published in a respected U.S. journal. Adam was listed as the second author, although he says he did not do much writing. His major contribution to the work was computer simulations.

When he came to Purdue, Adam started working with a Romanian professor who has since moved to another university. He published two papers with him, but has never talked about them with me. The reason for this may be that he never got along very well with this advisor and thought that he was not interested in supervising what Adam was doing.

Because he was quite dissatisfied with the one he had, Adam wanted to switch advisors and move out of the networking area and into the programming languages and systems area. This move, while probably a good one for Adam in the long run, meant that in addition to the two physics papers he published, he also had two networking publications that were of little use to him in a job search. His advisor, Professor X, told him several times that five CS publications were necessary to find a job in industry or academia. Apparently five is a magic number.

Adam published three refereed papers with his current advisor, Professor X. One of them, based on work he did in an internship, is described in the next section. A second one was published in the proceedings for major conference in the summer of 2003. The third was published a few months ago, but it is not considered a significant publication, and, so, did not count toward the five papers Adam felt he needed to have on his vita when doing a job search.

The next section describes Adam's internship experiences and the writing he did during those internships.

5.5 Internship Experiences

Adam completed three internships before he finished his PhD program. His first internship was in Phoenix Arizona, working for Intel. He was able to obtain this internship through his advisor, although by the time he started at Intel he was in the process of switching advisors. There he worked on a number of small projects but says that “they really didn’t have enough work for me, so I ended up learning a lot on my own.” This is similar to Adam’s experiences as a graduate student in Poland. During his time there, he did physics research, earned an MS in math and CS, and even became a Unix administrator². When he is interested, Adam seems able to learn just about anything. The key to whether he learns a lot or a little seems to be whether he is bored or challenged.

Adam says that it was during that summer internship at Intel that he had his first serious exposure to the Java programming language. This exposure was significant because the two papers that he has published since that time, and most of his research experience since then, has been with Java. In addition, Java has become one of the most important programming languages, both in private industry and in research circles and academia.

This internship was probably the least significant in terms of literacy experiences in Adam’s life because he says that it involved very little writing. He

² Unix is a computer operating system commonly used by scientists which was originally developed by researchers at AT&T’s Bell Labs. A Unix administrator is the person responsible for seeing that all the computers in the network that use the Unix operating system are able to communicate with each other to perform tasks like sending and retrieving email, retrieving web pages, and sending print jobs.

did compile a document based on his research at one point, but describes it as “mostly a list.”

Adam’s second internship, arranged, in his words, “basically through connections” was with Sun Microsystems in Boston. He was originally supposed to work in the Mountain View, California location, but ended up working at another location because Sun had funding for his position in Boston, but not in California. This is a curious fact because he spent most of his time working, via long distance phone calls, with “Greg”, a researcher from Poland – the same country Adam comes from who was based in Sun’s Silicon Valley California headquarters.

The work that he did that summer became a research paper that he published with two researchers from Sun and his advisor, Professor X. Most of the work was done in the summer, but he came back for a short period to finish the work in March of that year. The paper was eventually accepted, with Adam being listed as the first author, at one of the major refereed conferences in the field. Adam says that he did quite a bit of writing that summer. This paper, although not his first refereed publication, or his first computer science publication, is the first paper that Adam thinks of as counting in terms of job searches.

Adam’s supervisor at Sun must have been pleased with the work that he did because he was invited back for a ten month internship in September of 2003. Adam told me before he left that he was looking forward to being well-paid

while working on things related to his dissertation. And, actually, Adam was confident that he would be able to do more work on his dissertation than if he stayed at Purdue because he would not need to worry about balancing his time between his own research and the funded research project Professor X also wanted him to work on.

The next section describes Adam's attitudes toward reading, which are surprisingly different than his attitudes toward writing.

5.6 Attitudes Toward Reading

In contrast to his less than enthusiastic attitude toward writing, at least toward writing text – writing code seems to be something different, Adam has a much more positive attitude toward reading, especially recreational reading. More than any other person I interviewed in the ABC lab, Adam enjoys reading for pleasure and makes time for it every day. During several interviews, when the topic of reading came up Adam was quite enthusiastic. When he was reading an author I was familiar with, he wanted to discuss that writer's style and sentence constructions. I found myself adding lists of books to read at the same time I was taking notes on topics related to Adam's writing experiences.

In addition to discovering that Adam enjoyed recreational reading a great deal, I also discovered that he reads fluently in several languages. In addition to his native Polish and English, Adam also reads untranslated books in French and Spanish. He also told me that he tries to work on his German. One night when I was taking a break from doing my own work and came in to a local coffee shop at

11:00 in the evening, I spotted Adam there. He had a French novel and a French-Polish dictionary and was working his way through the novel, stopping as infrequently as possible to figure out a word or a phrase he was uncertain of. This was his idea of relaxing after a day of doing CS work. Certainly in terms of the number of languages he is able to read in for pleasure, Adam is clearly a highly successful language learner.

In the next section, I describe Adam's email practices and why he dislikes writing email messages.

5.7 Email and Attitudes Toward Writing

For most of his time at Purdue, Adam was involved in a funded research project in which Professor X was the principal investigator. This project was funded by the Department of Defense Advanced Research Projects Agency (DARPA). The particular project that Professor X was given funding for involved creating computer code that would be useful in airplane guidance systems. However, the code that Professor X's group worked on was written with a somewhat broader research purpose in mind in order to better understand some aspects of the Java programming language. As can be expected, DARPA, the funding agency, was willing to let Professor X's group use the funding for research purposes as long as their goals were met as a part of the research.

The code for the project was written by as many as a dozen people over a period of at least four years. More than 150 thousand lines of code had been written by early 2004. While it is not directly comparable to written text, this many

lines of text would, if printed single-spaced on standard copy paper, fill more than three thousand pages.

As can be expected, given the large number of people in the project, the enormous amount of code, and the fact that not all of the project members worked in Purdue's CS building, there were a number of control systems designed to help organize and monitor the code and documents related to the code. These systems included weekly research group meetings, at least two web sites devoted to documenting the project, and an email list serve. The web sites, and more especially, the list serve, were especially helpful because one key member of the team lived and worked in Australia. It was also helpful because it allowed project members to discuss issues relevant to the project without having to physically talk to them.

As part of my research, I joined the list serve and was sent all of the messages that were sent to the list. In addition, all of the messages were archived on the Internet on a password protected site that I was given access to.

As part of my research with Adam, I was curious to know what types of writing that he did and what his attitudes were, positive or negative, toward the writing that he did. Because email is so ubiquitous within the academy, because it is a type of writing that can only be done using a computer, and because it is usually low stakes writing with no grades associated with it, I assumed that Adam would have written many email messages and that he would have a more positive attitude toward that writing than he did toward the other academic writing

that he had done such as writing his master's theses. As the rest of this section will show, my assumption was wrong.

I did not, initially, pay close attention to who sent which messages during my research. However, as time went on, I noticed that most of the group members sent messages on a regular basis, but that Adam sent very few messages. I also noticed that, when I asked him about writing email during one interview, Adam thought of it, like his master's theses as a difficult task.

During one interview on May 4, 2003, I specifically asked Adam about his experiences with writing email messages and his attitudes toward writing and reading such messages. He told me that he often just skimmed the messages sent to the list serve unless they were directly related to something he was working on. But he also told me that he finds answering the email to be very time consuming. During one interview, he described the process of writing one relatively short message to the list serve as follows. "That email yesterday took me two hours to write. It's hard for me to put [down] the ideas in the back of my mind. I worked on it, literally, from 8:30 to 11:00 [last night]" (interview February 5, 2003).

Apparently, Adam liked to explain things orally rather than in written form. However, that was not always possible, particularly when the member of the research group in Australia needed to get the explanation. Adam told me that the single most time consuming aspect of writing email messages was word choice.

He said that, in extreme cases, he sometimes uses the Google web site to look for a phrase to see if it is a naturally occurring one in the English language.

I must admit that I was quite surprised to hear that someone would put so much time and effort into writing email messages since most of the ones I write are written in a very short period of time. As can be expected, Adam's extreme concerns with word choice and with using native-sounding phrases led to him either spending a lot of time on relatively short messages or, more often, to not writing messages.

Based on what he told me about writing email messages, I decided to use the research group archive and collect some empirical data on Adam's email practices. In order to preserve the readability of this chapter, I put his data in an appendix at the end of this dissertation.

Because the archives divided things into months, I used this as my unit of time. I counted the total number of email messages sent to the list each month, the number that Adam sent each month, and the median length of the messages that Adam sent each month. When determining the length of the messages, I counted how many lines each message was, but I did not count lines that were quoted from previous messages or lines of code that had been copied into the messages either since these were items that were sometimes written by someone other than Adam.

As can be seen, Adam's total number of messages each month was quite small when compared to the total that were sent. In 2000, he sent only one of the

196 messages sent. In 2001, he again sent only one of the 465 messages sent. In 2002, he sent just 28 of 1461 messages sent. In 2003, his most productive year, Adam sent 52 of the 2436 messages sent. And in 2004, Adam did not send a single message of the 2281 messages sent.

Adam also wrote messages that were, for the most part quite short. In February of 2002, his messages averaged 19 lines per message, the longest of his entire time with the research group. By contrast, most of the other people in the research group sending messages to the list serve sent messages averaging 35 lines. Most other months, when Adam did send messages to the list serve, the messages were much shorter than that. When I asked him about his email practices on May 6, 2003, Adam told me about the email message that he had written and sent to the list serve the night before. He said that he spent close to two hours composing the message. When I looked at the message later I saw that it was twelve lines long.

I should point out that Adam's messages were, for the most part, not dramatically shorter than those sent by others in his research group, but he sent far fewer messages than most others did. In addition, despite the fact that there were a number of months where Adam sent no messages, I know that he was subscribed to the list serve and an active member of the research team during that period. He was actively contributing to the project and regularly attending research group meetings. These periods, and the brevity of the messages he did write, give some indication of how little Adam enjoys writing. I find this especially

curious because these email messages are, for the most part, low stakes messages with no grades and few potentially negative judgments associated with them.

The next section describes the experiences Adam had while writing his dissertation.

5.8 Adam's Dissertation

Except for people who leave their program before graduating, the dissertation is the final task that must be completed before a PhD can be awarded. As can be expected, Adam found writing his dissertation to be more difficult than he expected it would be.

During an interview I had with Adam when he was working on finishing his dissertation he told me that just that morning that he wondered how he managed to write exams in high school and in the university in Poland, but now he was struggling to write his thesis which does not have to be written under such strict time limits. He thinks that since ever since 8th grade his ability to write fluently has deteriorated significantly. He felt that he could write text quickly then and got good feedback and thought he was doing good writing, in terms of style.

Just a few years ago he said that the ease of writing was there and he could write during just about every daylight hour. However, in his rush to write his dissertation as quickly as possible, he realized that he can not write for six hours a day. I do not know whether this was more a function of simply being unable to

type and stare at a laptop computer for hours or a sign that he is not as young as he was when he was an undergraduate.

In any case, based on my interviews, I know that he wrote most of the dissertation in two short and intense months after he had come back from his internship at Sun, although the research took at least two years to complete before he started writing. He was motivated partly by the fact that he knew if he stayed at Purdue for one more semester he would have to teach and would have less time for research. However, a more significant factor was likely the fact that he had, unofficially, been offered a research position at Sun that was contingent on him defending his thesis before his start date.

On November 12, 2004, Adam successfully defended his dissertation. The committee was, apparently, quite pleased with the work he did and asked for no revisions before submitting the dissertation to the library. Less than one week later he moved to California to start his new job at Sun. In fact, Adam left so quickly that he had to appoint a proxy to print and deposit the copies of his thesis. I last heard from him in an email message where he said "I'm doing just fine, enjoying myself here and having a good work-life balance, plus, cherries are blossoming here, it's really nice, although a bit too rainy ..." (February 17, 2005).

5.9 Chapter Reflections: My Literacy Autobiography

In this section, I describe my own autobiography as a writer. In contrast to Adam, my parents were educated and placed a high value on literacy, although

they encouraged me and my brother to read more than they encouraged us to write.

Books were always important in my parents house. We went to the library on a regular basis back in the seventies to check out books. Some of these books inspired me to change my life, or so I thought at the time. I had many passions that emerged quickly and then were replaced by others. Luckily, library books are free. I can remember during one of my phases I was convinced that I wanted to run a pet store with a large aquarium section. I did end up buying and stocking two or three aquariums and buying a hamster, but that was the closest I ever came to owning a pet store.

My father was the first person in his family to go to college. His father worked in a glass factory most of his life and had little money to give to his family. My father had eight siblings and was only able to attend because he won a New York state regent's scholarship that paid for his tuition. He majored in mathematics and minored in art, largely because he liked it and also because he and the hard sciences, particularly physics, did not get along.

My maternal grandfather was the first in his family to attend college. He came from Ely, Nevada to Flint, Michigan after working as a bus driver in the mountains of Nevada to attend General Motors Institute (now called Kettering University) to study engineering. The school was owned by General Motors in those days and trained engineers who would work for the auto manufacturer once they graduated. My grandfather got straight A's, but ran out of money and

never finished. He never worked for General Motors either, although he maintained a life-long brand identification with the company. Almost all of the cars he owned throughout the nearly sixty years since he left the school were manufactured by General Motors. He always wanted a Cadillac, but his wallet was never so big. He bought Buicks because they were the closest he could afford. In addition, Buicks were made in Flint, and I think that even when he later moved to Detroit he still felt some sort of emotional connection to Flint. He never saw Michael Moore's documentary *Roger & Me* that described how the city was decimated when General Motors eliminated 30,000 jobs in the city, but I think he had a good idea of how much the city had changed over the decades.

Television was also important to my parents, especially to my father. He has spent a good amount of his evening free time in front of it over the years. But, unlike me, my father has the amazing ability to read a book and watch television at the same time. I think I have never really understood his ability and used to think that the time he was watching television was time wasted, but he, clearly did not see things that way.

I certainly did watch my fair of television when I was younger. But, once I moved out of the house and began developing a more independent lifestyle, I did not put a TV in my first apartment. (The man who was my boss at the time mentioned this to his wife one day and she said, "what does he do – read all the time? Of course, I did not read all the time.) As time has passed I have watched very little TV. Mostly I watched movies, first on VHS, now on DVD.

Now that I am a parent of two young children, I have, with my parents help, tried to encourage my son to read frequently and often. Michal, my son, seems to be fond of science. He is now taking his third Super Saturday class organized by the Gifted Educational Resource Institute (GERI) in Purdue's School of Education. All of the classes have been on science topics: adventures in science, dinosaurs, and now fun with math. When he comes home from his class or from his preschool, Michal likes to either play with his toys or read books. He loves to have people read to him, but he, somehow, taught himself to read and can sit on his bed for twenty or thirty minutes at a time reading. His latest fascination has been the ocean. He likes to ask me questions about the deep zone over and over again.

We have no television in our small apartment, and I think this helps him concentrate on books and creative play. My daughter, being less than a year old, is too young to read.

My wife is a post-doctoral researcher and spends her days reading and writing. But we are both very busy with our work and raising our family; neither of us seems to be able to find much free time to read for pleasure.

CHAPTER 6

CONCLUSIONS

6.1 Chapter Overview

This chapter is organized as follows: section 6.2 reviews the limitations of the study; in section 6.3 I review the research questions raised in the first chapter; section 6.4 through 6.6 discuss the implications for theory, research, and teaching, respectively; the chapter ends by suggesting directions for future research in section 6.7.

6.2 Limitations of the Study

It is important to bear in mind that the results here are partial and situated in a particular time and place. The conclusions that I make are limited to a small group of three second language writers who did most of their writing in the discipline of CS. In fact, I have come to realize that I have not even learned all I could about each of the participants' literacy experiences. When doing the final interviews with Hiroshi, Daniel, and Adam I was still learning new things, fully two years after I had started. It seems clear to me that writers, at least the ones I have studied, lead rich lives that can never be fully captured, even in a longitudinal ethnographic study.

The next section returns to the research questions raised in chapter 1 and offers answers to them.

6.3 Reviewing the Research Questions

In chapter 1, I listed a series of questions that this study would attempt to answer. The first two questions were broad and general questions that guided much of my research:

- What sort of writing do graduate students in a CS research laboratory do?
- How do they feel about the writing that they do?

As I mentioned in section 6.2, what I have to say about writing in this study is limited to the participants in this study. I really have no idea what types of writing all CS graduate students do – I do not even know that much about the types of writing members of the ABC research lab, the site I studied, do, but I do know something about the writing that Hiroshi, Daniel, and Adam did when they were part of my study.

Aside from occasionally using the chalkboard or scribbling on scrap paper to draw a picture of something relevant to the task at hand, all of the writing that the participants did was written on computers. Each of these writers spent a large amount of their day writing, but most of what they wrote was computer code. However, they seemed to think that writing code was not really writing, at the very least, they thought of it as a very different writing activity than writing text.

However, I would argue that the two activities are not so dissimilar. Both are written using computers; in fact, most people in the ABC research lab used the Emacs text editor¹ for both writing code and for writing text. When things were written collaboratively, as was almost always the case with both code and text, people in the ABC lab used the same tool (CVS²) to store manage and collaborate on the document or code³.

In addition, computer code has rhetorical elements that, to my knowledge, have not been discussed in any L1 or L2 composition studies journal. These elements include: 1) the fact that code writers have individual styles of writing that allow others familiar with their work to immediately identify who wrote a particular chunk of code, and 2) comment sections of code (not compiled or executed by the computer) that are written either as clarifications and reminders to the author or others who may read the code. CS researchers also use something in between text and code called pseudocode as examples in research papers that they write. Rather than directly copying and pasting a relevant

¹ Emacs is one of the most common editors that people use in Linux programming environments. It can be used to write and compile computer programs, write text, browse web pages, and for reading, sending, and receiving email. One day I asked one of my participants how he feels about using Emacs to write code and text. Before he could answer, another student in the lab heard the question and interjected "your question assumes there's a choice." However, Emacs is not the only editor commonly used; another equally popular editor is called vi. Both Daniel and Professor Palsberg use vi. When I asked them, separately, why, they both said that it works fine for their purposes, and they never got around to learning how to use Emacs.

² Concurrent Versions System. For a more detailed description the history of CVS and of how it can be used to collaborate, at least when writing code, see Bar & Fogel, (2003), especially chapter 2.

³ Not everyone in the lab is happy with this choice. For instance, Hiroshi once told me that he thought CVS was a pretty crude tool for collaborating on text because it assumes that a sentence should be edited no more than once and makes it quite difficult to keep track of multiple changes to a single sentence.

section of code, researchers in the ABC lab usually shorten and rewrite the code so that it fits into the argument made in the paper and takes up the smallest possible amount of space without omitting crucial details. Professor X is, according to Adam, a big believer in changing the original code into pseudocode to improve the clarity of the paper and to preserve space and counsels his graduate students learn how to write pseudocode as part of learning to write scientific papers.

The next set of questions concerned the affective dimension of writing and included the following

- Do these students find writing difficult?
- Is this difficulty the same for all writing situations? For example, is there a difference between writing in their L1 and their L2 or between writing a research paper and an email?
- What memories of successes and failures in writing do they have?
- What strengths and weaknesses do they feel they have as writers?

As I think the central chapters of this study demonstrate, each of these writers had difficulties with writing, but each of them had a different set of experiences. Both Hiroshi and Adam had memories of serious difficulties writing their MS theses, but Daniel never mentioned having to write one. All three of the

participants spend the majority of the time they write writing in English. Even the code they write has a particularly English flavor to it⁴.

The next set of questions related to the more biographical element of each person's life as a writer.

- What people influenced their writing?
- What were the writing activities of current and preceding generations of their family?
- What role did writing has play in their homes and in their family's social, cultural, occupational, and/or religious practices?
- What was the role of writing with peers?
- What kinds of writing have they done outside of school?

I was surprised to learn that each of the writers in this study came from very different family backgrounds. However, this surprise is based on an assumption I held that people attain similar levels of education to their parents. As I learned when I discussed the findings of this dissertation with my examining committee, I had no empirical evidence for making this assumption.

As far as the participants' family education background, only one had parents who were highly educated. Daniel, whose father is a researcher and

⁴ One day when I came to interview Daniel, I had to wait a few minutes for him to finish working with the code he was working on. When he was finished he told me that he was working with some code that someone else had sent him. He suspected that the code was written by a Japanese person because the variables in the program had unusual sounding names and because the code seemed to be a little "odd" to him. This was the first time that I realized that code can have traces of a person's L1 and culture, even when it is written for an international audience.

whose mother works in textbook publishing was the only person who came from a family where books, writing, and science were highly valued. For this reason, it is perhaps unsurprising that neither Hiroshi nor Adam spent very much time talking about their parents or the role that writing played in their homes.

Both Daniel and Adam were involved in student organizations for people from their countries, Romania and Poland, respectively. Daniel was, at one point, the president of the Romanian students society, although he never mentioned any writing activities he was involved in during that time. By contrast, Adam was involved in writing in the Polish students and scholars society. He administered a list serve that allowed people in the community to post and read messages, all written in Polish, to the members of the local Polish community. However, Adam made it clear to me that he never particularly enjoyed the administering this list.

Because of the fact that Adam did not particularly enjoy the work, it comes as no surprise that Adam was pleased to relinquish his responsibilities as a list administrator when he found a way to automate the list serve using Yahoo.

The next research question concerned technology.

- What sort of influence has technology had on their writing and their attitudes toward writing?

I will describe this issue in more detail in section 6.4, but almost all the writing that the participants did was done using computers. I was unsurprised to learn that both Hiroshi and Adam were very comfortable using a wide variety of

computer software packages to write text and code. But what I did find surprising is Daniel's attitude toward technology; in his words "technology is the enemy."

While he was being facetious, Daniel genuinely disliked learning to use new software to write. Daniel was one of the few people in the ABC research lab who used vi rather than Emacs to write code and text. In addition, because he worked largely by himself, he was also one of the few people who did not know how to use any of the standard tools for collaborating when writing code or text.

By contrast, Hiroshi and Adam had rather positive attitudes toward technology, although they were both acutely aware of the problems and limitations of all the technology they used. Adam, in particular, seemed to genuinely enjoy learning how to use new hardware and software. Before he came to Purdue, Adam learned how to be a Unix administrator; and when he worked as an intern for Intel, Adam used his free time to learn Java. One of the reasons Adam switched areas of study from physics to CS is because he enjoyed the chance to "play with new toys" on a regular basis.

The next question concerned reading and its relationship to writing.

- What sorts of reading have they done and how has this reading related to the writing they have done?

Reading was important for Hiroshi and Adam, although the experiences were very different. By contrast, reading seemed to play little role in either Daniel's personal or professional life.

Adam was the only one of the three participants who considered recreational reading to be an important enough activity to make time for it almost every day. He regularly read books in Polish, English, French, and Spanish. He also read online newspapers and web sites in those languages, although he did admit that most of his online reading was “hacker news”, as he put it. These “hacker news” web sites were concerned with topics like the Linux operating system, the Java programming language, and Macintosh hardware.

Hiroshi told me that he did not spend very much time on recreational reading, although, shortly before and after his daughter was born he did read a number of books about babies and fatherhood. However, what was most surprising about Hiroshi’s reading activities was the fact that he preferred to do the reading for his courses at home because he found it less stressful to read CS books and articles in English in a Japanese environment. Hiroshi thought that his anxiety about speaking English was related to the fact that he was not as fluent or as accurate in English, his L2, as he was in Japanese. I would be curious to know if Hiroshi improves his English skills as he develops as an emerging scholar and if this continued development encourages him to feel more comfortable reading in English-speaking environments.

The next three sections discuss the implications of this study for theory, for research, and for teaching.

6.4 Implications for Theory

As Cumming (1998) and Silva (1990) have pointed out, there is, as of yet, no comprehensive theory of L2 writing, although there has been at least one attempt to articulate a partial theory (Grabe, 2001) as well as several studies that add to an understanding of several important areas that such a theory might cover. These areas include: the relationship between composition studies and L2 studies (Matsuda, 1998), the cognitive process of translation in L2 writing (Liu, 2004), the relationship between genre and L2 writing pedagogy (Johns, 1997; Swales, 2004), and the ways that L2 writing research can inform L1 composition theory and pedagogy (Silva, Leki, & Carson, 1997). Based on the research I have presented in this study, I believe I can offer three suggestions for additional items researchers might want to consider including as part of a more comprehensive theory of L2 writing, primarily in terms of the affective dimension of L2 writing.

First, I believe I have discovered some interesting connections between reading and writing. Hiroshi and Adam both considered reading to be an important activity in their lives as literate people, although they had very different approaches to it. For Hiroshi, the fact that he was reading in English in a Japanese environment reduced the stress he associated with speaking in his L2 and allowed him to get more out of his reading. For Adam, reading in multiple languages other than his L1 was a source of pleasure. Those who work on building a more comprehensive theory of L2 writing ought to take into account the fact that the relationship between reading and writing in an L2 (or language other

than the L1), at least in this study, is a very complicated yet interesting relationship.

A second item worth noting is that different types of writing have very different affective reactions for L2 writers. All of the subjects in this study spent a tremendous amount of time writing computer code and never seemed to consider the process of writing it to be a great source of stress. However writing text was a very different matter.

A more comprehensive theory of L2 writing ought to take into account that a writer's affective reaction to the process of writing one type of text might be very different than the reaction to writing another type of text. I would suggest that this difference may be due to the fact that some types of writing are much more formulaic than others and require fewer lexical choices and fewer complicated grammatical functions to master. I believe that this is the case when writing computer code, but I know of no published study on the rhetorical or linguistic dimensions of computer code.

Finally, the relationship between technology and the affective dimension of writing is in need of more exploration. As I showed in chapter four, even people highly proficient in using technology, such as Daniel, may have considerable anxiety about using it in some circumstances. I believe that one promising way that researchers may begin exploring the relationship between technology and writing is through autobiographies and narratives that explore L2 writers' experiences with technology as it relates to writing.

Silva et al. (2003) argued that the genre of the writer's autobiography offers numerous possibilities for both L2 writing teaching and research. Given the fact that so much writing is done using technology such as computers, word processing and email software, printers, keyboards, and monitors, it is almost certain that the majority of L2 writing is done using this technology. Whether L1 and L2 writers use the technology in the same way and if they have similar reactions to their use of the technology is something that could be included in a more comprehensive theory of L2 writing.

The next section discusses implications for research.

6.5 Implications for Research

I was once asked during a job interview how a case study of just three people could add to knowledge in my field. My response to such a question is that it depends on what is meant by knowledge. My results have nothing to say that could be used to predict the successes and difficulties other second language writers. What I have been able to do is to describe what a small group of writers do and how they feel about what they do. As I outlined in section 2.4, my goal was to try and understand the emic perspective and describe what sort of writing the participants did and the ways that the participants viewed that writing. The success of this study depends not on the ability of my research to make predictions about other writers, but on how rigorous my methods of data collection and analysis were and how careful I was in accurately describing what I learned.

In thinking about the results of my research, it is important to consider the ways that I had a role in the study and how my status as a researcher may have had an effect on the results. A number of questions could be asked. For instance, would the study have been different if I had more CS background? The three participants in this study spent hours of time explaining computer concepts to me in order to help me understand how to ask better questions. A researcher with more of a background in programming languages would not have had to spend so much time on these issues and probably would have ended up with a very different set of results than what I had.

In addition, because of my experience teaching and living in Poland, I had a number of experiences I could draw on in my interviews with Adam. Was I at a disadvantage with Hiroshi and Daniel because I did not share so many experiences with them? Did Adam tell me things about his life as a writer in Poland that he would not have told a researcher who had not lived there for an extended period of time.

Related to my experience living in Poland, did the fact that I am an American shape my experiences? Even though I have had extensive international experiences, unlike the three participants in this study, most of my educational and professional experiences have been in the United States. I definitely had the impression that this affected my interviews with Hiroshi because he often wanted to know how my experiences were similar to or

different than his. I have no sense as to how my background as an American had an influence on my interviews with Daniel and Adam.

The next section discusses the pedagogical implications of this study.

6.6 Implications for Teaching

While a large amount of research in both L2 studies and composition studies is connected with language teaching, I believe that not every study of L2 writing needs to have pedagogical implications. In this study, most of the writing that the participants were doing was unconnected to the classes that they took. And even when that writing was connected to the participants' coursework, it was always in CS courses, not in writing courses. For this reason, I believe that the primary contribution I have made in this dissertation is to L2 writing research, not to L2 writing pedagogy.

Having said that, doing the research for this study has influenced me as a teacher. I have become much more aware that each student I teach has a very different affective reaction to the writing that I ask him or her to do. I have become a believer in looking for ways to let the students let me know what they think of what they have learned. In her article in *English for Specific Purposes*, Belcher (1994) suggests that the techniques involved in doing ethnographic writing research also have correspondences in pedagogical techniques such as holding one-on-one conferences with students and writing assignments that allow students to voice their opinions about the course, such as journals. In addition to ways to allow my writing students more opportunities to directly communicate

with me, this study has reinforced some of my ideas about the writing process and the way it ought to be taught. When I was teaching in Poland I was lucky enough to find a copy of Johns (1997) book *Text, role, and context*. In that book, Johns argues for the importance of reflection as an essential part of both the writing process and the learning process. In addition to writing and learning about some of the processes involved in writing, I have made reflection an integral part of most of the classes I have taught through things like journals and short ungraded in-class writings. Since I started doing the research for this dissertation, I have been challenged to continue assigning such activities while looking for ways to make sure that these activities are not stress-inducing.

The next section, the last in the dissertation, makes some suggestions for future research.

6.7 Contributions to Knowledge

This findings of this dissertation can be connected to three fields: L2 writing, English for specific purposes, and writing in the disciplines. As I mentioned in chapter 1, one of the areas of inquiry within L2 writing is composing processes of L2 writers. My study adds to that knowledge by showing how the affective dimension of writing interacted with the composing processes of the three writers in this study. This is particularly noticeable in the case of Adam and his email practices. An examination of his research group email archives indicated that he wrote very few messages and the ones he wrote were very

short. However, the interviews I did with him indicated that he actually spent a great deal of time reading and writing those email messages.

The field of English for specific purposes has long been concerned with understanding different disciplinary communities and the ways that writers learn to use language appropriately within them. Included within these ways of using language is the genre of the formal review. Section 4.5 showed how Daniel struggled to understand why reviewers reacted to his work as they did. To my knowledge, no one has ever studied the way people read and respond to reviews.

Finally, this study also adds to what is known about writing in the disciplines. One important aspect of academic writing for graduate students and junior faculty is learning how to appropriately frame a journal or conference submission so that the reviewers regard the work as new interesting and difficult. Daniel is still struggling with learning how to do this. By contrast, Adam seems to have learned how to do this largely because of the mentoring of professor X and his research and writing experience at Sun. My description of how Adam learned how to do this is an important contribution to knowledge about writing in the disciplines.

6.8 Directions for Future Research

As I outlined in chapter 1, studies of writing in CS, particularly studies of L2 writing, are few and far between. One could do research on virtually any topic

and add to knowledge in the field. However, I believe that this study suggests some areas in particular worth studying.

My study focused on just three graduate student writers in CS.

Undoubtedly, other CS professionals in other domains would have very different experiences. Someone interested in doing another ethnographic study of CS professionals like this one could look at any of the following groups:

- Undergraduate CS majors
- CS faculty at research universities
- CS faculty at teaching-intensive universities
- CS professionals working in government and private industry who's primary job is production.
- CS professionals working in government and private industry who's primary job is research.

In addition to these groups I have named, I think it would also be useful for future researchers to look at CS writers in countries outside the United States where the L1 is not English. Many of the students and faculty in the ABC research laboratory told me that they thought the majority of CS researchers publish their results in English. Only empirical research can confirm if this is true. Related to this point, in places where English is not the L1, do CS researchers read primarily in English? What documents do they write in English and what documents do they write in their L1. In addition to answering these and related questions, it would also be valuable to know what types of attitudes CS

researchers outside the United States have toward writing in both English as well as their L1. Does being in a non-English speaking environment have a strong effect on a person's ability to learn the written genres of CS research?

As I mentioned in section 6.4, exploring the rhetorical dimensions of computer code and the process of writing (both individual and collaborative), and reading that code are rich areas for future scholars. Areas worth pursuing might include answers to the following questions:

- Does computer code have both international and local influences? Does the hegemony of English as a research language extend to computer code?
- In what specific ways is computer code similar to and different from other types of texts? And are these differences linguistic, rhetorical, or, more likely, both? Would such similarities hold true for both high-level and low-level⁵ programming languages?

One particularly promising type of writing worth looking at are the comments that programmers include with their code. These comments are meant to be read by humans, not machines. Based on my observations, people clearly have an individual style that comes out in the comments that

⁵ High-level languages resemble natural languages, are easier for beginning programmers to learn, but they take more time for the computer to compile into binary code that the computer can execute. *Java* and *C++* are examples of high-level languages. By contrast, low-level languages resemble math more than they do natural languages, have a much steeper learning curve than do high-level languages, but they can be compiled into binary code that a computer can understand much quicker than high-level languages. In addition, there are far fewer CS programmers who learn low-level languages. *Assembler* is an example of a low-level language.

they write. In addition, people seem to have very different attitudes toward updating the comments that other people write when the code is changed. I have seen instances in the ABC laboratory where a person changed a section of code but did not change the comments to reflect these changes.

- In what ways do CS professionals read code, and how are these methods different than the ways they read other genres within their field?
- When the same tools are used for both writing code and text, are the tools used in the same way? Do they work equally well? Why do people choose one tool over another?

In addition to these areas, it would be useful to look at the ways that people read and write genres other than research articles. One item I only recently realized is only partially understood is the white paper. White papers resemble research papers in a number of ways, but, based on the observations I have made, they seem to be read and valued in different ways than research articles. In addition to white papers, another promising avenue worth exploring is looking at the way that journal articles and conference proceedings are written and read and valued differently. As far as I can tell, at least in the ABC research laboratory, conference papers are valued more highly than journal articles are. I am aware that both are refereed publications, but the peer-review process and the way they are read and distributed seem to be different. More research is needed to move beyond the mere speculations I am able to make here.

As I write the final words of this dissertation, I realize that I have learned a great deal about the literacy experiences of Hiroshi, Daniel, and Adam. In addition, researching and writing about these writers has given me the opportunity to reflect on my own literacy and language learning experiences. However, I leave the study having raised at least as many questions as I was able to provide answers for. Seeking answers to questions that have been raised is one way that the field of L2 writing will continue to move forward as an area of inquiry in the twenty-first century. I invite others to continue the work that has been done.

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Sternglass, M. S. (1997). *Time to know them: A longitudinal study of writing and learning at the college level*. Mahwah, NJ: Lawrence Erlbaum Associates.

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Terkel, S. (1995). *Coming of age: The story of our century by those who've lived it*. New York: The New Press.

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APPENDIX

APPENDIX
ADAM'S EMAIL COUNTS

Table A1 Adam's Email Messages to His Research Group List Serve 2000

Month	Total Messages Sent	Messages Adam Sent	Median Length (in lines) of Adam's Messages
October	28	0	N/A
November	106	0	N/A
December	62	1	2
Total	196	1	N/A

Table A2 Adam's Messages to His Research Group List Serve 2001

Month	Total Messages Sent	Messages Adam Sent	Median Length (in lines) of Adam's Messages
January	19	1	0 (message was an automatically generated script he did not write)
February	20	0	N/A
March	1	0	N/A
April	27	0	N/A
May	24	0	N/A
June	3	0	N/A
July	18	0	N/A
August	18	0	N/A
September	31	0	N/A
October	68	0	N/A
November	178	0	N/A
December	58	0	N/A

Table A3 Adam's Messages to His Research Group List Serve 2002

Month	Total Messages Sent	Messages Adam Sent	Median Length (in lines) of Adam's Messages
January	61	2	1
February	90	3	19
March	69	5	4
April	56	1	1
May	265	4	10
June	247	3	7
July	32	0	N/A
August	171	9	7
September	173	0	N/A
October	145	0	N/A
November	51	0	N/A
December	101	1	3
Total	1461	28	N/A

Table A4 Adam's Messages to His Research Group List Serve 2003

Month	Total Messages Sent	Messages Adam Sent	Median Length (in lines) of Adam's Messages
January	77	3	13
February	38	2	8
March	109	4	5
April	227	9	5
May	398	21	7
June	192	11	5
July	152	2	6
August	168	0	N/A
September	163	0	N/A
October	201	0	N/A
November	336	0	N/A
December	375	0	N/A
Total	2436	52	N/A

Table A5 Adam's Messages to His Research Group List Serve 2004

Month	Total Messages Sent	Messages Adam Sent	Median Length (in lines) of Adam's Messages
January	248	0	N/A
February	245	0	N/A
March	261	0	N/A
April	280	0	N/A
May	189	0	N/A
June	404	0	N/A
July	117	0	N/A
August	117	0	N/A
September	261	0	N/A
October	108	0	N/A
November ¹	44	0	N/A
December	7	0	N/A
Total	2281	0	N/A

¹ Adam defended his dissertation on November 12, 2004 and moved to California soon after that. Despite the fact that he sent no messages to the list serve, he was, at least officially, still a member of his research group during the eleven months prior to his dissertation defense.

VITA

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EDUCATION

Ph.D. (English) Purdue University, (expected May 2005)

Primary area: teaching English as a second language
 Secondary area: rhetoric/composition with an emphasis on writing
 program development

Dissertation: *Hacker writers: A study of the literacy practices of
 selected writers in a computer science research laboratory*

Committee: Tony Silva (chair), Myrdene Anderson, Patricia Sullivan,
 Irwin H. Weiser

M.A. (linguistics) Wayne State University, 1997

Thesis: "Affricates are weighted contour segments"

Committee: Martha Ratliff (chair), Ljiljana Progovac, Patricia Siple

B.A. (English) Eastern Michigan University, 1991

B.A. (philosophy) Houghton College, Houghton, New York, 1989

Spring Arbor College, Spring Arbor, Michigan 1985-1987 (transferred)

AWARDS, GRANTS, AND HONORS

Awards:

Kathryn H. Mostel Teaching Portfolio Award (honorable mention), Purdue University Introductory Composition Program, 2003

Kneale Award for Pedagogy (second place), Purdue University Literary Awards, 2002

Grants:

Department of English Travel Grant, Purdue University, 2004

Purdue Research Foundation Summer Grant, Purdue University, 2003, 2004

Graduate Student Association Travel Grant, Purdue University, 2001

ACADEMIC POSITIONS HELD

Graduate Instructor, 2000-present
Department of English, Purdue University

Writing and Public Speaking Consultant, fall 2001 and spring 2004
Department of Computer Sciences, Purdue University

Lecturer II, summer 2001
English Language Institute, University of Michigan

Visiting Senior Lecturer, 1997-2000
School of English, Adam Mickiewicz University (Poznan, Poland)

PUBLICATIONS

Journal articles: (* indicates refereed)

Palsberg, J. & Baxter, S. J. (2002). Teaching reviewing to graduate students. *Communications of the ACM*, 45(12), 22-24.

Baxter, S. J. (2002). A genre-based approach to teaching the MA thesis. *Network*, 5(2), 2-8.*

Baxter, S. (1999). On the asymmetry of affricates, *Poznan Studies in Contemporary Linguistics*, 35, 7-22.*

Reviews:

Baxter, S. J. (2004). [review of Gross, A.G, J.E. Harmon, M. Reddy. (2002). *Communicating science: The scientific article from the 17th century to the present*. Oxford: Oxford University Press.]. LINGUIST List: Vol-15-2455.

Newsletters:

Baxter, S. J. (2004). Book clubs in the first year composition classroom. *ICaP News*, 6(2), 3,8.

Forthcoming and in progress:

Baxter, S. J. On the literacy experiences of two second language writers in a graduate computer science research laboratory. Townsend, M., M. Patton & J. A. Vogt. (Eds.), *College writing across disciplinary and cultural boundaries*. Status: proposal currently under review.

Baxter, S. J. (forthcoming). [book notice of Gross, A.G, J.E. Harmon, M. Reddy. (2002). *Communicating science: The scientific article from the 17th century to the present*. Oxford: Oxford University Press.]. *Language*.

PRESENTATIONS

National/International:

July 25-29, 2005 "The literacy practices of one L2 writer in computer science." Paper to be presented at the 14th World Congress of Applied Linguistics. Madison, Wisconsin.

May 20-22, 2004 "Toward an understanding of two second language writers in a graduate computer science research laboratory." Paper presented at the 7th National Writing Across the Curriculum Conference, St. Louis, Missouri.

September 30-October 2, 2004 "Telling the story of one L2 writer in computer science." Paper presented at the 4th Symposium on Second Language Writing, West Lafayette, Indiana.

May/June, 2001 "Disciplinary writing inside and outside the United States: Toward an understanding of the last chapter of a dissertation." Paper presented at the 5th National Writing Across the Curriculum Conference, Indiana University, Bloomington, Indiana.

Local and regional presentations and lectures

April 28, 2004 "Two L2 Writers in a Graduate Computer Science Research Laboratory: Preliminary results." Interdepartmental Program in Linguistics Lecture Series, Purdue University.

November 19, 2003 "Using Book Discussion Clubs in the Composition Classroom." Brown Bag Lecture Series, Department of English, Purdue University.

November 16, 2002 "Teaching reviewing to computer science graduate students." Paper presented at the 24th Annual Indiana Teachers of English to Speakers of Other Languages Conference, Indianapolis, Indiana.

October 30, 2002 "On Giving Academic Presentations." Brown Bag Lecture Series, Department of English, Purdue University.

May 7, 2002 "Teaching reviewing to computer science graduate students: A report on a pedagogical experiment." Paper presented at the 1st Purdue Linguistics Student Conference (PLSC11), West Lafayette, Indiana.

January 21-22, 2002, "Preliminary examinations into the role of qualification and certainty in an electrical engineering writing exam: What are the characteristics of these L2 writers?" (with Joanne Lax) Poster presented at 4th annual meeting of the Midwest Association of Language Testers (MwALT), Oak Brook, Illinois.

November 10, 2001 "A genre based approach to teaching the MA thesis to Polish students of English: Preliminary examinations." Paper presented at the 23rd Annual Indiana Teachers of English to Speakers of Other Languages Conference, Indianapolis, Indiana.

August 23, 2001 "Seven Suggestions for Giving Academic Presentations (give or take a few)." Department of Computer Sciences, Purdue University.

October, 1999 "Biased for Success: Some practical tips for teaching EFL writing at a Polish university." (a series of two lectures) Writing Program, School of English, Adam Mickiewicz University.

January 17, 1998 "Affricates are Asymmetrical." Phon and Phon Group Meeting, School of English, Adam Mickiewicz University.

PROFESSIONAL EXPERIENCE

Courses taught at Purdue University

Computer Sciences 661 Formal Compiling Methods (graduate; taught one section)

Summary: I was hired by a professor in the computer sciences department to be a teaching assistant for a course in which the students simultaneously read technical papers on contemporary programming languages topics and learned the genre of formal review writing. I served as a consultant for the professor and helped him plan the course. I also gave one lecture on how to give scientific presentations. I was responsible for having weekly one-on-one tutorials with the students to help them improve their reviews before they were submitted to the professor for a grade. I also helped them prepare presentations in these tutorials. The majority of the students in the class were second language writers. A summary and evaluation of the class was published in *Communications of the ACM* and is available online: <http://web.ics.purdue.edu/~baxters/papers/cacm02.pdf>

course URL:

<http://www.cs.ucla.edu/~palsberg/course/purdue/cs661/F01/index>

Introductory composition program

Summary: In this program, I was closely mentored by a faculty member during my first year. After that I was free to design my own syllabus, as long as it met the shared goals of the program. For all the sections that I taught, I was responsible for all aspects of the class, including planning lectures and discussions, conferencing, and grading.

English 101 Introductory Composition I (taught three sections. N.b. there was no course web page the first time I taught the course.)

course URLs:

http://web.ics.purdue.edu/~baxters/101_f02.htm

http://web.ics.purdue.edu/~baxters/101_sp03.htm

English 102 Introductory Composition II (taught two sections)

Course URL (same for both sections):

http://web.ics.purdue.edu/~baxters/english_102_syllabus.htm

English 106 First Year Composition (taught two sections)

Summary: In the fall of 2004, English 101 and 102 were replaced by English 106. The two most significant changes were regular teaching in computer classrooms and an extensive conferencing component. I taught using two different suggested syllabi that I heavily edited to fit my own pedagogical style.

course URLs:

http://web.ics.purdue.edu/~baxters/106_sp04 (ethnographic syllabus)

http://web.ics.purdue.edu/~baxters/106_sp05.htm (literature/cultural studies syllabus)

Learning communities program (as part of the introductory composition program) Summary: In this program, I designed and taught my own course. Students in my course were co-enrolled in another course. I, along with the instructors in the other course, were responsible for planning extra-curricular activities that would increase class cohesiveness and add to the educational value of the course. (taught two sections)

course URLs:

http://web.ics.purdue.edu/~baxters/106r_f03.htm (for students in earth and atmospheric sciences and students in mathematical sciences; ethnographic syllabus)

http://web.ics.purdue.edu/~baxters/106r_f04 (for students in computer sciences; literature/cultural studies syllabus)

Other teaching at Purdue University

English 001t Classroom Communication for International Teaching Assistants (graduate; taught one section)

Summary: this course is designed for non-native speakers of English who would like to have teaching positions in their departments, but need to improve their oral classroom communication skills. In addition to teaching students how to improve their oral academic English skills, the course also had an extensive one-on-one conferencing component. I was solely responsible for conducting the conferences and classes as well as for assigning grades.

course URL: http://web.ics.purdue.edu/~baxters/001t_sp02.htm

English 227 Elements of Linguistics (taught one section)

Summary: I was solely responsible for designing and teaching the course. I covered the traditional elements of linguistics (phonetics, phonology, morphology, syntax, semantics) as well as diachronic linguistics and sociolinguistics. I used a writing-intensive approach to attempt to increase student learning and engagement.

Course URL: http://web.ics.purdue.edu/~baxters/227_f02.htm

Courses taught at the University of Michigan, Ann Arbor

Summary: This was an intensive summer program for non-native speakers of English who had been admitted to graduate programs at American universities (both the University of Michigan and other American universities) who wanted to improve their academic English skills in the weeks before classes started. The program also had regular extra-curricular activities which I helped plan and participate in. I taught in this program once during the summer of 2001.

Course URLs (all are graduate classes):

http://web.ics.purdue.edu/~baxters/eli_speaking_page.htm (ESL academic speaking)

http://web.ics.purdue.edu/~baxters/ELI_academic_writing.htm (ESL academic writing)

Courses taught at Adam Mickiewicz University in Poznan, Poland

Summary: I was hired as a visiting senior lecturer to teach courses in reading, writing, and speaking to Polish students of English. All classes and class materials were in English. I also developed a new linguistics course. I was solely responsible for designing and teaching all the courses. In addition, I was also assigned to several examination committees to assess the English language skills of the students and determine whether or not they were eligible to begin their next year of studies. Most of these classes did not have web pages because the Internet was still nascent at the time and because many of the students did not have access to computers with reliable internet connections.

Languages of the World – third year proseminar (developed course)

Course URL:

http://web.ics.purdue.edu/~baxters/languages_of_the_world.htm

EFL Extensive Reading – first year

URL with description and evaluation:

http://web.ics.purdue.edu/~baxters/teaching_portfolio_extensive_reading.htm

EFL Academic Writing – fourth year

EFL Academic Speaking – fourth year

Publication describing and evaluating the speaking and writing courses:

http://web.ics.purdue.edu/~baxters/papers/baxter_network.pdf

EFL Speaking – second year

EFL Combined Speaking/Writing – third year

Tutoring:

Writing consultant for dissertation: *Bounding the stack size of interrupt-driven systems*,

Ma, Di. (major professor: Jens Palsberg) Department of Computer Sciences, Purdue University, Spring 2004

Summary: I worked one-on-one with the author on drafts of his dissertation chapters to improve the quality of the prose before it was submitted to the members of the dissertation committee. The committee was impressed by the dissertation and asked for no revisions after it was successfully defended.

EFL pronunciation tutor for selected students, A Mickiewicz University, 1998-2000

Volunteer ESL tutor, English Language Institute, Wayne State University, 1993-1996

Proofreading:

Freelance proofreader of scientific articles, conference abstracts, dissertations, etc. (primarily computer science), 2001-present

Freelance proofreader of scientific articles and abstracts (primarily linguistics), 1997-2000

Non-academic work experience:

Assistant librarian, Wayne County Sheriff's Department, 1991-1997

Summary: I offered legal bibliographic services to pre-trial detention inmates at the Wayne County jail (Detroit, Michigan). The jail is the eleventh largest facility of its kind in the United States and had three buildings. I worked in the building housing prisoners with the highest security level. I worked under the supervision of the librarian and was solely responsible for administering one of two legal libraries. I worked closely with members of the administrative staff and sheriff's deputies. I was one of a handful of civilian employees who worked in the facility.

SERVICE**Conference activities**

Fourth Symposium on Second Language Writing. Local Representative and Session Chair, September/October 2004

Contrastive Rhetoric Roundtable. Conference Volunteer, October 2002

Third Symposium on Second Language Writing. Local Representative, October 2002

Second Symposium on Second Language Writing. Session Chair, September 2000

Service to the Department of English at Purdue University

Consultant for redesign of English language and linguistics and ESL web sites, 2001

Service to the Department of English at Adam Mickiewicz University**Examination committee experience at Adam Mickiewicz University**

EFL oral examination committees:

Fourth Year EFL Examination Committee, 1999-2000

Second Year EFL Examination Committee, 1998-99

Third Year EFL Examination Committee, 1997-98

EFL written examination committees:

Third Year Essay Examination Committee, 1997-98

Fourth Year Essay Examination Committee, 1997-98, 1998-99, 1999-2000

Fourth Year Portfolio Assessment Committee, 1997-98, 1998-99, 1999-2000

Other services to the department of English at Adam Mickiewicz University

Assisted in revising the fourth year writing syllabus and helped in revising the portfolio system by changing the core items in the portfolio and adjusting the way the portfolio is evaluated so that the portfolios would better prepare students to write their MA theses in the fifth year.

Assisted in revising the fourth year essay examination marksheet by limiting the number of features that the teachers had to evaluate and revising the previous ones.

Textbook testing:

Reviewer/tester for Reinhart, S. M. (2002). *Giving Academic Presentations*. Ann Arbor: University of Michigan Press.

GRADUATE COURSEWORK

Composition studies:

Contemporary Composition Theory (Janice Lauer, Purdue)
 Seminar in Writing Across the Curriculum (Irwin Weiser, Purdue)
 Postcritical Methodologies and Writing Research (Patricia Sullivan, Purdue)
 Professional Writing Theory (Patricia Sullivan, Purdue)

Second language studies:

Theory of English as a Second Language (Bruce Morgan, Wayne State)
 Teaching English as a Second Language: Theoretical Foundations (Margie Berns, Purdue)
 Seminar in Second Language Writing (Tony Silva, Purdue)
 Seminar in Second Language Testing (April Ginther, Purdue)
 Teaching English as a Second Language: Principles and Practices of Curriculum Design (Tony Silva, Purdue)

Research methodology/statistics:

Experimental Statistics I (David Moore, Purdue)
 Experimental Statistics II (Bruce Craig, Purdue)
 Research Design in Language and Linguistics (April Ginther, Purdue)
 Directed Reading in Qualitative Methods (Tony Silva, Purdue)
 Seminar in Ethnographic Analysis (Myrdene Anderson, Purdue)

Teaching practica:

Practicum in Teaching Introductory Composition (Irwin Weiser, Purdue)
 Practicum in Teaching Academic Writing (Irwin Weiser, Purdue)
 Practicum in Teaching Linguistics (Elena Benedicto, Purdue)

Theoretical and descriptive linguistics:

Language Acquisition (Ljiljana Progovac, Wayne State)
 Pragmatics (Ellen Barton, Wayne State)
 Language and Society (Joseph Gaughn, Wayne State)
 Phonology (Martha Ratliff, Wayne State)
 Theory of Syntax (Ljiljana Progovac, Wayne State)
 Sociolinguistics (Walter Edwards, Wayne State)
 Seminar in Discourse Analysis – Personal Experience Narratives (Ellen Barton, Wayne State)
 Language Variation and Change (Walter Edwards, Wayne State)
 Advanced Studies in Linguistic Structures – Language Typology and Universals (Martha Ratliff, Wayne State)
 Linguistic Analysis of Sign Language (Diane Brentari, Purdue)
 Semiotics (Myrdene Anderson, Purdue)

Library science:

Introduction to the Information Profession (Bruce Shuman, Wayne State)
 Electronic Access to Information (Bruce Shuman, Wayne State)

MEMBERSHIP

American Association for Applied Linguistics (AAAL)
 Indiana Teachers of English to Speakers of Other Languages (INTESOL)
 Institute of Electrical and Electronics Engineers Professional Communication Society (IEEE PCS)
 Teachers of English to Speakers of Other Languages (TESOL)
 Modern Language Association (MLA)

REFERENCES

Tony Silva
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a Second Language
Department of English
Purdue University
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Head and Professor, Rhetoric
and Composition
Department of English
Purdue University
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Myrdene Anderson
Associate Professor of
Anthropology and of Linguistics
Department of Sociology and
Anthropology
Purdue University
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Professor of Computer Science
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