

A Transfer Subject: Tracing Boundary-Work and Micro-Transfer in First-Year Composition

Dylan London Medina

A dissertation  
submitted in partial fulfillment of the  
requirements for the degree of

Doctor of Philosophy

University of Washington

2017

Reading Committee:

Anis Bawarshi, Chair

Juan Guerra

Candice Rai

Program Authorized to Offer Degree:

English

©Copyright 2017

Dylan London Medina

University of Washington

**Abstract**

A Transfer Subject: Tracing Boundary-Work and Micro-Transfer in First-Year Composition

Dylan London Medina

Chair of the Supervisory Committee:  
Professor Anis Bawarshi  
English

This dissertation draws on data from a quarter-long case study implementing a number of social science and humanities research methods. This study was conducted at the University of Washington in two sections of First-Year Composition and investigates the boundary-marking interactions that occur in a writing class by tracing the experiences of focal participants through the quarter. Data collected through interviews, textual analysis, and ethnographic observation reveals the kinds of boundary-work that occurs across three fields: 1) the spatio-temporal field of matter and time; 2) the discursive field where our ideas and understandings of the world are

constituted; and 3) the field of identity which spans the spatio-temporal and discursive fields but differs from other fields insofar as we have a unique interest in human individuals.

The results of my research speak to emerging conversations in network, ecological, and complexity theories in Rhetoric and Writing Studies; and to the established conversations in Writing Studies on the transfer of learning. From the results, I establish a loose taxonomy of boundaries based on their field and their flexibility and permeability as they are iteratively constituted. These boundaries give definition to the network or ecosystem and emerge from complex interactions that occur therein. This taxonomy provides a language then to discuss the ways in which boundary-work occurs through a series or chain of interconnected micro-transfers, or the effects that past boundary configurations on future boundary work. I illustrate the use of this perspective in understanding the interactions that occur in a learning context like the writing classroom and recommend that teachers no longer see boundaries as given or inevitable obstacles that students must surmount. I also offer implications for further research to extend the taxonomy presented here and to advance our understanding of the nature of boundaries, boundary-work, and the specific mechanics of micro-transfer.

## Contents

Chapter 1. Boundaries of Transfer .....	1
Chapter 2. Writing Spaces and Spaces of Writing. ....	34
Chapter 3. Spaces of Boundaries .....	75
Chapter 4. Movable Boundaries .....	140
Chapter 5. Beyond the Boundaries of Transfer .....	193
REFERENCES: .....	226
Appendix I .....	240
Appendix II .....	241

## Acknowledgements

My thanks first to the instructors who allowed me to participate in and observe their classes, and to all of the participants who were part of this study. I am particularly grateful to the focal participant students for their frankness and honesty in answering all of my questions and follow-up questions over many weeks of study. I would also like to thank Ann Shivers-McNair for introducing me to the work of Karen Barad and theories of matter and entanglement and to the conversations on the topic. And I am grateful to service members and contracted transition coordinators at Joint Base Lewis-McChord for their support in the transition program I worked with that helped me better understand how transfer works outside of academic contexts.

For their valuable feedback on an in-progress manuscript drawn from Chapters 2-4, I would like to thank Jonathan Alexander, editor of *College Composition and Communication*, and my three anonymous reviewers who provided a useful critique that helped me refine the theory and better situate my argument in the conversations on knowledge transfer in my field. I am grateful for Dennis Medina and Miles Coleman who both read several drafts of this manuscript. My thanks also to my many colleagues and friends in the Communications and English departments at the University of Washington for their moral support and providing a helpful sounding board as I worked through this project, especially Miles Coleman, Mandy Macklin, Ann Shivers-McNair, Tait Bergstrom, and Rob Weller.

I am very grateful to my committee and mentors, Anis Bawarshi, Juan Guerra, Candice Rai, and Leah Ceccarelli, for their guidance through the process of conducting this study from its inception before and in my qualifying exams, and also for the ways they have modeled what it is to be a scholar, challenged my thinking, and encouraged me to look closer. Anis has been especially generous with his feedback in our conversations, on numerous rounds of very rough drafts and on the abovementioned manuscript. I also appreciate the moral support he has provided and confidence he has had in me throughout this process. Finally, and most of all, I am grateful to my wife, Emilie Medina, for her

sacrifice, support, encouragement, and motivation, without which I most certainly would not have made it very far, at all.

## Chapter 1. Boundaries of Transfer: Reconsidering the Boundary-Work of Transfer

Transfer research, as it stands today, would likely consider Michael<sup>1</sup> a prime example of successful transfer. On the surface, he appears to possess what Reiff and Bawarshi (2011) call a “boundary-crossing” disposition. When I met him at the beginning of the quarter, he displayed both confidence in his writing ability and a clear sense of the need for writing to respond to the specific situations and audiences that call that writing into being. Over the course of my study, he reported no struggle in writing his assignments and finished his first year composition (FYC) course with a high grade. I suspect that he continues to write effectively in his intended major (Business), and if pressed he could even articulate how he applied argumentation strategies learned in FYC in other contexts. My observations of Michael during class sessions showed him to be quick to seek out and pick up the crucial concepts that allowed him to do the work of his FYC class—particularly rhetorical strategies that were covered during the first four weeks of the term. Further, his instructor regularly called on Michael in classroom discussions, responded positively to Michael’s comments, and spoke highly of him in our informal discussions throughout the quarter. Michael provides a good example of what Nowacek (2011) calls “seeing” and “selling.” He is able to see connections between what he already knows and articulate them in a way that is convincing to his audience.

During my interviews with him, Michael always asked for clarification as to both what exactly the question was trying to ask *and why I was asking it*, reflecting a disposition to seek out a meta-level understanding. Our understanding of transfer in Writing Studies would suggest that Michael exemplifies the characteristics that produce effective transfer. Perhaps we might

---

<sup>1</sup> Self-selected pseudonyms used for study informants.

even congratulate FYC for its hand in helping Michael develop these dispositions—though these habits and skills were present in our first interview.

Over the past 20 years, Writing Studies has made significant progress in developing our understanding of the phenomenon of transfer, adding to work done in the fields of Education and Cognitive Psychology. This research has illustrated that transfer is a highly complex and multifaceted phenomenon that depends not only on the individual but also on the context or contexts in which the transfer is occurring. Transfer research in Writing Studies became prominent with the Special Issue of *Composition Forum* on Transfer (“*Composition Forum*,” 2012), the 2011-2013 Elon University Research Seminar on Critical Transitions (ERS), not to mention a number of major conferences with “transfer” themes (“*Elon Statement on Writing Transfer*,” 2013). The numerous studies on transfer have yielded various conclusions on what the phenomenon is, how it works, and what we can do to facilitate it. There has certainly been much debate over the topic, but the general consensus is that transfer has to do with the way past learning affects work done in present and future contexts (Haskell, 2000).

Another way we might think of transfer is how past knowledge, skills, and experiences are brought to bear on present and future learning situations. Much of the work on transfer in Writing Studies has focused specifically on the role that writing and writing instruction play in facilitating transfer, or making past and current learning have a more positive, substantial effect on future learning. Our research has also focused on obstacles to transfer, the kind of “boundaries” that need to be crossed, and what our FYC courses can do to help. This research on transfer is particularly valuable to Writing Studies and worth focusing on. With FYC being such a major *raison d’être* for the field—or at least is the course that materially sustains the

field—and the course being based on the notion that some writing instruction early in a student’s college career will help them write effectively in future writing contexts, transfer is a central concern for Writing Studies.

With this notion of transfer in mind, Michael clearly provides an example of effective transfer. He was able to use what he learned in writing in the past to help him write effectively in the class I observed. Perhaps Michael’s most impressive example of transfer appeared in our final interview. I asked him to discuss the kinds of interactions that he had with his instructor and what it is that makes a good teacher. In his response, Michael drew on past experiences in high school, his contemporaneous experiences with a particularly inspirational Chinese Language professor, and even his knowledge of professional wrestling.<sup>2</sup> Michael employed all of these resources to articulate his perspective on this writing instructor and effective teachers in general. While Michael’s case seems to illustrate a positive case of transfer, as I describe below it also illustrates the complexity of transfer and our need for further research on the topic, specifically on the moment-to-moment interactions where dispositions form. The difficult boundaries that appeared later in the quarter for Michael also illustrate the importance of understanding the boundary-work<sup>3</sup> that is important to transfer.

Michael is of particular interest because his story isn’t all transfer-positive. This complication appeared when Michael’s instructor asked an attendance question—something

---

<sup>2</sup> Michael referenced Macho Man Randy Savage’s comments on the inspiration he received from Hulk Hogan to describe the kind of inspiration he received from good teachers.

<sup>3</sup> I use boundary-work generally throughout this dissertation to discuss the kinds of actions and interactions that constitute and interact with boundaries that define the material and discursive worlds. I build on this notion of boundary-work throughout this dissertation.

he did everyday—that Michael found potentially offensive and disrespectful.<sup>4</sup> The instructor asked, “Have you ever been in a fight?” Michael did not personally have a problem with answering but was concerned that this question might be a trigger for some students. At this precise moment, a shift occurred in how Michael interacted with the class. While he continued to display a similar identity in class, to do all the work, and to participate in discussions and activities, Michael expressed increasing frustration and decreasing respect for the instructor in our interviews. Along with this frustration with the instructor, Michael also approached class assignments with less interest and less effort. It appeared that the boundary that identified Michael and his position in class had changed. By boundary—and I discuss this at length in the next chapter—I mean the line differentiating Michael as an individual within the class. Michael succeeded in hiding this shift from the instructor and continued to receive praise from the instructor, which suggests that the boundary identifying Michael appeared the same externally, but over the course of my remaining interviews for the second half of the quarter, Michael articulated less connections between the work of the class and his future career interests. This suggests that perhaps the class was being assimilated less into his larger experience and knowledge. Perhaps a good way to describe this shift, again borrowing terms from Reiff and Bawarshi, is that Michael became a “boundary-guarder” in regards to the class and especially the instructor, but remained a “boundary-crosser” in general. Another way to see it is that an impermeable boundary formed between Michael and the class, preventing him from remaining fully engaged and taking up the experiences and content of the class.

---

<sup>4</sup> It’s worth noting that none of my other informants had any problem with the question.

While Michael's case, and the other cases I'm presenting in this dissertation, can be explained using the complex transfer theory that has already been developed, they also present an opportunity to extend this theory in regards to boundary-work, which I define at length in this chapter and the next. This study sees boundaries not as pre-existing barriers to transfer but rather as the product of the interactions between matter, discourse, and people that iteratively define the discursive and material world by marking boundaries that differentiate objects and ideas. As a result, this dissertation shifts the focus on transfer from major movements between different contexts—like from one class or term to another—that can be observed longitudinally to the moment-to-moment interactions (like the attendance question) where dispositions develop and people live transfer. The investigation of boundary-work and moment-to-moment interactions, which I'm calling *micro-transfer*, draws on the findings of this study conducted at a large west coast research university with the goal of contributing to our understanding of transfer, writing instruction, and the relationship between the two.

In this chapter, I briefly review the history of transfer in Writing Studies and the current conversations on transfer. I argue that while we have learned much about the phenomenon of transfer and its relationship to writing instruction (Anson & Moore, 2017; Bass & Moore, 2017; Beach, 1999; Beaufort, 1999; Dyke Ford, 2004; Nowacek, 2011; Reiff & Bawarshi, 2011; Sternglass, 1997; Yancey, Robertson, & Taczak, 2014), our understanding of what transfer is has taken boundaries for granted, which I discuss at length below. Instead of seeing transfer as a movement from one spatial and temporal context to another, different context, I will argue for a micro-view of transfer that focuses on the accumulation of moment-to-moment interactions between people, things, and places. While other scholars, notably Elizabeth Wardle (2007),

have challenged the implications of movement that transfer implies, they retain the notion that transfer is something that occurs over long time periods, which results, perhaps inevitably, in a view of transfer as occurring between different contexts. In other words, scholars have recently questioned the unidirectional and temporal notion of transfer, but by focusing on major changes in context, like that between FYC and the disciplines, the learning moments in which students transform have been insufficiently captured and analyzed. Micro-transfer addresses this problem by focusing our attention directly on these transformative interactions as boundary-work that, as I will discuss below, establish the boundaries that give the world definition. Transfer, then, from this perspective is the practice of making use of knowledge and skills to negotiate these interactions and navigate these boundaries. While on a macro level transfer might look like moving knowledge and skills or transitioning from one context to another, more specifically it is a series of micro-transfers that occur as the world fluctuates and develops across time. In other words, what we have known as transfer is really comprised of a series of rhetorical acts that allow people to inhabit the social space around them.

Developing the understanding of transfer that I argue for here is crucial as we move towards post-human, networked, and ecological theories of writing in which the individual, which is the central and driving unit in previous models of transfer, begins to become entangled into the ecosystem. Just as understandings of transfer have changed in the past as theories of writing evolve, as writing theory is pushed past humanism, so too must be our understanding of transfer. In the next section, I address the transition of transfer from an implicit to explicit center of Composition. In the following section, I will then develop a theory of micro-transfer drawing on post-humanist theories of rhetoric that focuses on writing and rhetorical action *as*

*they occur* and proposes a shift in our understanding of the movement that occurs in transfer.

Finally, I will conclude, as is appropriate to the genre of composition scholarship, with implications for research and instruction.

### **A Brief History of Transfer**

Transfer has become a hot topic in Writing Studies over the past 20 years. It seems to me that Writing Studies, from its inception, has occupied in-between spaces. As we understand it today, the field emerged in response to the literacy crisis stemming from a population of students from the growing middle class following the U.S. Civil War who had literacy practices different from the students with whom the university faculties were accustomed to working (Brereton, 1995). Universities couldn't close the gates to these students, but at the same time their literacy practices offended the delicate sensibilities of members of the faculty. The field emerged with the development of an introductory writing class that responded to this "crisis" by preparing students for their future writing. David Gold complicates this story in his history of the field by pointing to the writing instruction that occurs at smaller liberal arts colleges, women's schools, and HBCU's. However, in this counter-history, writing classes are still implicitly transfer focused in their effort to prepare students for their futures. Then the social turn, pushed in Writing Studies by David Bartholomae (1986) and Patricia Bizzell (1978), revealed that our efforts to change students' literacy practices is not simply teaching a particular set of knowledge or skills but involves transforming students' rhetorical—and therefore social—identities. In other words, it seems that from the beginning, the

methodologically, philosophically, disciplinarily, and politically diverse field of Writing Studies has been unified and driven by a pedagogical imperative to *transform people*.<sup>5</sup>

Implied in this imperative is a particular temporal trajectory: we begin at one state, some sort of intervention is made, and then we arrive at a new state that is “higher” or more developed than we were before. This looks like a student entering an FYC class, the class providing instruction on claims and evidence, and the student becoming more conscious and effective at connecting claims to evidence. This intervention is highly complex, but if we see education as the process by which activities that occur in one time and place affect (“positively?”) those that occur at another time and place, then teaching, education, and the entire enterprise of Writing Studies pedagogy as a “teaching subject”—to borrow a phrase from Joseph Harris (2012)—is all about transfer. As a subject focused heavily on education and transfer, Writing Studies has sought to position itself and its classes in the in-between spaces in which transformation occurs. Since we see the need for transformation most clearly between different contexts, our focus has been on spaces like those between high school and college or between general university education and the disciplines. So, we position mandatory composition classes at this juncture. However, this assumes that transformation occurs once, and the instructional intervention needs only to successfully transform students from high school to college writers. From a large perspective, this works, but it fails entirely to attend to the moment-to-moment transformations that we are all constantly experiencing and which are

---

<sup>5</sup> This is a large claim, and my purpose here is not to work on a history of Writing Studies through the lens of transfer, a study that would be well worth the time doing. It does seem, however, that transfer is at least implicitly important to a field with its main class being designed to prepare students for future writing in non-Writing Studies contexts.

*where learning really occurs.* Writing Across the Curriculum (WAC), Writing in the Disciplines (WID), and Writing About Writing (WAW) have all made great strides in addressing this problem by incorporating writing instruction in all spaces where writing occurs. However, there is still much need to better understand what occurs with students in any given writing moment.

While I would suggest that transfer has been part of Composition from its inception, explicit studies on the topic are often traced to research done by David N. Perkins and Gavriel Salomon (1992). They describe transfer as tantamount to learning and suggest it is the application of knowledge in new settings. In their discussion on transfer, Perkins and Salomon provide an important taxonomy for transfer that categorizes it in regards to the distance between learning contexts and the degree it occurs consciously. They also argue for strategies to “teach for transfer,” playfully calling the notion that transfer automatically occurs the “Bo Peep theory” of transfer (1992, p. 23). Another important foundational voice for transfer research was David Russell who worked on Genre and Activity Theory. Russell further complicates our understanding of transfer arguing against relying on teaching general writing skills, which he likens to teaching general “ball handling” skills (D. R. Russell, 1997, pp. 57–58). The problem with general skills, he suggests, is in the fact that activities fit *dependently* within activity systems—or complex networks of people, materials, and tools (ibid). Elizabeth Wardle makes a similar argument about “mutt genres” (2009). With activity systems, we might think of transfer as the way in which learning to participate in past activity systems and prepare students to participate in future ones.

It makes sense that Perkins and Salomon’s theory of transfer would be embraced by Writing Studies Scholars around the turn of the 21st century in part because they saw individual

students moving from high school, through their classes, to college, and their imperative was to provide an educational intervention that would help students write across those spaces.

Perhaps more importantly, this turn to transfer stems from a need to justify FYC in response to Writing Studies scholars who argued for its abolition (Crowley, 1998; Smit & Hesse, 2007). Ever since Writing Studies became explicitly interested in transfer research, the phenomenon has been described as involving some form of recontextualization or integration aided by either explicit teaching and/or helping students develop metacognition or other meta-level skills (Beach, 1999; Downs & Wardle, 2007; Nowacek, 2011; Reiff & Bawarshi, 2011; Tardy, 2009; Wardle, 2009; Yancey et al., 2014).<sup>6</sup>

I suggest that transfer became an explicit issue for Writing Studies largely as a result of the mandate for a composition course that rests on the notion that writing instruction will in some way transfer, and as a result of the role that writing can play in helping people learn. The role that writing plays in learning is central to the cognitivist and writing-to-learn paradigms. These movements are worth noting because the role of writing changes. While earlier movements focused on teaching something about writing, something—either formal or procedural—that would serve students in any future context, cognitivists and followers of the writing-to-learn paradigms shifted writing from a skill or knowledge that could be transferred *to an activity that facilitates transfer*. If we think about transfer as the movement of knowledge and skills from one context to another, the earlier movements saw writing as the knowledge

---

<sup>6</sup> I mention only a handful of the many valuable studies on transfer that might be seen as exemplary.

and skills to be moved. The writing-to learn paradigm saw writing as, perhaps, the conduit through which our knowledge and skills could move from context to context.

An important study, and one of the most significant studies on transfer that illustrates the cognitivist paradigm is Marilyn S. Sternglass' (1997) longitudinal study that appears in her book *Time to Know Them: A Longitudinal Study of Writing and Learning at the College Level*.<sup>7</sup> In her study, Sternglass sets out to follow a diverse group of students as they make their ways through their entire college careers in an effort to better understand how students develop writing skills, and more generally, learn. Sternglass argues that the "major function of education is to foster questioning," which involves a movement "beyond [an] automatic acceptance to recognize that new insights could be provided that might alter some unexamined assumptions in their fields" (p. 295). This means that education is not solely about developing knowledge, but also about developing a particular disposition in the face of the world. Borrowing from Bourdieu's (1977) understanding of the relationship between disposition and "habitus," I define disposition as *a habit-of-occupying* the context in which people find themselves. For instance, a student with a "questioning" disposition would approach a context using inquisitive strategies. Likewise, students with "complacent" dispositions would approach the context at face value and accept it rather than inquire into it. Students who question are those who have a habit of being skeptical of their own senses or the status quo of the context. Sternglass suggests that writing is the key to developing this disposition. She explains, "Only through writing, perhaps through the condensation and analysis of classroom notes or through writing of drafts of

---

<sup>7</sup> I recognize that Sternglass does not explicitly discuss transfer, but is more interested in the role that writing plays in learning; however, it has been taken up by transfer researchers as a model for studying transfer and understanding writing's role in transfer.

papers that require them to integrate theory with evidence, did they achieve the insights that moved them to complex reasoning about the topic under consideration” (ibid). In this argument, writing becomes a tool to facilitate learning, so writing becomes a transfer instrument that is developed across time. Writing, not surprisingly from the perspective of a writing studies scholar, becomes the center of the educational universe. I think this may be overstating the importance of the field, but that is not a debate I wish to take up here. What is important is that the cognitivist paradigm of Writing Studies saw writing as a tool that helps students think and learn, and if learning is indeed tantamount to transfer, then writing is a tool that helps students transfer.

Sternglass’ study also illustrates the virtues of a longitudinal approach to research that reveals how students develop over a number of years. While I am challenging that approach below, my challenge only suggests that we could do more, not that there is anything fundamentally wrong with longitudinal studies. Anne Beaufort (2007) takes a similar longitudinal approach focusing on transfer explicitly (Sternglass is concerned with learning, and so with transfer). Building on her earlier work (Beaufort, 1999), this study follows Tim through his undergraduate degree and into his career. Beaufort’s major contribution in this work is five considerations for teaching for transfer. Specifically, teaching for transfer should consider discourse community knowledge, subject matter knowledge, genre knowledge, rhetorical knowledge, and writing process knowledge (Beaufort, 2007, pp. 143–144). While she points out some of the problems in her follow up essay in the special issue of *Composition Forum*, Beaufort’s (2012) work to enrich the way in which we teach for transfer is an important piece in the history of this research. Additionally, the WAC movement emerged as a response to

concerns over obstacles to FYC's ability to improve students writing in the many fields into which students will enter. Charles Bazerman's (2005) edited collection provides a thorough overview of the WAC movement, which has done much to help Writing Studies develop good pedagogy.

The social approaches of the end of the 20<sup>th</sup> century marked an important turning point in Writing Studies both in terms of how we understood writing and transfer. It was at this moment when the field shifted into a post-process paradigm, which incorporated post-modern theories that emphasized the social construction of the individual, texts, and contexts. Writing was no longer understood within the field be a tool that an individual could learn and apply across contexts; rather writing depended on the context. Bartholomae (1986) famously starts his essay, "Every time a student sits down to write for us, he [sic] has to invent the university for the occasion—invent the university, that is, or a branch of it, like History or Anthropology or Economics or English" (p. 4). He continues to suggest that student writers struggle because what is asked of them is to write in a way that is recognizable for each discourse in which they are asked to write. This means taking on the voice and identity of each field. Bizzell (1978) makes a similar argument suggesting that our evaluation of student writing relates to their ethos, or the authorial identity that appears in a student's writing, and specifically that ethos' ability to conform to our expectations. An important argument that she makes, which illustrates the shift in our understanding of transfer, appears in her critique of "the project of attempting to delineate usable heuristics for inventing arguments of universal appeal" (p. 353). In other words, Bizzell suggests we abandon our goal of finding a "transferable" set of writing-related knowledge and skills. The shift in understanding of writing that occurred in the post-

process moment was one of writing as a single, universal thing to writing as contextually situated and socially constructed. The implication of this for transfer is that *writing does not simply or automatically transfer*.

The response from Writing Studies has been to figure out some way to do something in FYC that would be useful to all students. It makes sense, then, in the post-process moment that Writing Studies might be characterized by an obsession with transfer with our national convention theme regularly incorporating some aspect of transfer ranging from “transcending boundaries” in 1996 to “writing gateways” in 2013. Additionally, numerous research studies researching the topic have filled our journals and special issues, collections, and books, and have held a central place in the scholarly writing of the field. Movements like WID and WAC have grown on the concern for transfer. In short, transfer has become not only an implicit part of Writing Studies as a result of the pedagogical imperative and our concern for writing instruction, but became the explicit hub around which the wheel of Writing Studies turns (more recently, WAC proving to be a quite effective answer to the transfer question, we have turned to other topics, but transfer is still a concern, especially as a subject of study).

Recent research has found that if we see transfer as a simple movement of knowledge and skills from one context to another, it doesn’t really exist (Nowacek, 2011; Rounsaville, 2012; Wardle, 2009). This explains Sternglass’ focus on development in her study rather than the movement of skills and knowledge. It makes sense that seeing a clean transfer of either knowledge or skills is difficult. Both are radically situated, and so they must be changed or “recontextualized” when they are deployed in new contexts (Nowacek, 2011). Since transfer becomes a relevant concern when contexts are changing, then perhaps knowledge and skills do

move from one context to another, but they look different in the new contexts, and so perhaps researchers simply fail to recognize transfer that is occurring.

This issue of recognizing transfer is not only a problem for researchers. When we teach knowledge or skills or genres as “transferrable,” we run into the problem of students assuming that whatever things we choose to teach are plug-and-play. To illustrate this challenge, Wardle (2009) points out that genres do not effectively transfer either into or out of a context. She argues that explicitly teaching genres doesn’t work because the genres become decontextualized outside of their disciplinary home and thus cease to be the same genre. For instance, a lab report written in FYC isn’t the same lab report as one written in a real Biology lab for the simple reason that genre, as we see it, is not an text or object, but rather what Amy Devitt (2004) calls “a nexus between an individual’s actions and a socially defined context” (p. 31). Devitt explains the notion of “nexus” further saying, “[g]enre is a reciprocal dynamic within which individuals’ actions construct and are constructed by recurring context of situation, context of culture, and context of genre” (p. 31). I am struck by Devitt’s use of the spatial terms. In this definition, genres act as spaces in which an individual and their context negotiate to construct a particular rhetorical action, which in turn allows the individual to connect through the genre to the social. Perhaps we could teach what looks like disciplinary genres, if we have the expertise in those genres, but since the negotiation is occurring in the context of FYC rather than the disciplines, they will not be the same genres. It is difficult to imagine FYC instructors to have expertise both in composition and disciplinary genres, particularly since so much of the FYC labor is done by new scholars. There is perhaps some value in having students try out disciplinary genres in a composition class as a means of thinking about how they work

rhetorically, but if we suggest that the experience writing in them is directly transferable, students will suffer in the long run.

Around the turn of the 21<sup>st</sup> century, transfer research had already become significantly complex. Terttu Tuomi-Gröhn and Yrjö Engeström (2003) provide an excellent overview of the various non-exclusive theories of transfer. They suggest that transfer research fits “into three groups according to the basis of transfer which are task, individual and context, or actually interaction between individual and context” (Tuomi-Grohn & Engestrom, 2003, p. 33). At the same time, scholars have also suggested that the term “transfer” is terminally flawed. King Beach (1999) uses the term “consequential transitions” instead to highlight the importance of awareness, which is what makes them “consequential,” and of changes that occur through learning, which he equates with “transfer.” Nowacek (2011) uses the term “integration” as in “agents of integration” emphasizing the agency of the student writer. She also describes transfer as involving “recontextualization” and “connection.” While these acts of renaming transfer can easily lead to some confusion, which is why I have chosen to remain fairly close to the term here, they are accurate and illustrate a growing understanding of the phenomenon. For instance, Beach’s use of “transition” emphasizes his understanding of the ontologically transformational nature of the phenomenon. Nowacek’s various terms point to various aspects of transfer, as well. Integration emphasizes the idea that whatever is being transformed needs to “fit” into the new context. In this, Nowacek’s view of transfer as a rhetorical phenomenon is particularly valuable. Transfer is not simply about changing contexts but is always about being effective in that context. Even in traditional definitions of rhetoric we see this relationship between context and argument. For instance, Aristotle’s (2009) definition of rhetoric, “the

faculty of observing in any given case the available means of persuasion,” clearly emphasizes the importance of spatial, social, and temporal context—or “case” (p. 1.ii). In other words, Nowacek shows the inherent connection between transfer and rhetoric because transfer is about “fitting” into a particular context and rhetoric is about being able to effectively communicate in a particular context.

Not only does Nowacek effectively illustrate the importance of the context, she also demonstrates the transformational nature of transfer. Recontextualization, like transition, emphasizes transformation within a situation. When Nowacek turns to her participants, her focus turns especially to the idea of transfer as a connection. She suggests that transfer is about “seeing” and “selling” connections between disparate contexts (p. 39). In this view of the phenomenon, transfer involves both recognition of similarities on the part of the student and their ability to convince their audiences that the similarities they see are viable. For instance, when a student writes an essay for a new class they must not only figure out how to write it from their past experience but also convince their reader that whatever their past experience guides them to write is valid. This speaks to the interrelationship between various contexts that makes transfer possible in the first place, which means that boundary lines between contexts are not complete but rather partial. I suggest that instead of seeing these various views of transfer as separate and mutually exclusive, it is better to understand them as revealing various facets of the same phenomenon. I am particularly interested here in the importance of boundary work as it shapes the context of transfer.

The idea of “selling” is also extremely useful because it fits with Nowacek’s overall idea that transfer is a “rhetorical act” (p. 39). Transfer is rhetorical insofar as it occurs as “a response

within an already established chain of utterances” (ibid). In other words, transfer is rhetorical because it responds to the exigencies of the situation, and it is about persuading an audience of its effectiveness as such a response. Transfer—at least as we understand it now—happens because people find themselves in situations to which they need to respond, and to do so they must draw on the resources they have at their disposal, largely knowledge and skills stabilized in their physical and cognitive memories. This much is the “seeing” part. In addition, the response that these rhetors make then must fit into the “chain of utterances” or be taken up by the audience, the “selling” part. In other words, transfer is rhetorical because it is an act of making meaning in response to the demands of the context with the goal of intervening against and satisfying those demands. Understanding transfer as a rhetorical action is particularly powerful because it accounts for the idea of transition or recontextualization, integration, and *even the movement of knowledge and skills*. Nowacek’s theory allows her to look more closely at transfer than Sternglass or any other longitudinal studies. In fact, she focuses on one academic term rather than several terms or several years to conduct her study. By looking at transfer between concurrent classes rather than sequential classes, Nowacek is able to see transfer in a more nuanced way, but still remains distanced from the moment-to-moment activity of students writing. I want to look closer.

Perhaps the major finding of all the transfer research that has been conducted has been the value of metacognition and other meta-level reflection skills associated with writing development. Metacognition refers to the act of thinking about thinking (although in common usage it is less sharply defined). In other words, when a writer reflects on their thinking as they are writing, they are doing metacognition, and this helps with transfer. Transfer research has

leaned heavily on metacognition as the key to helping students with transfer, and while metacognition clearly can make students more strategic and reflective writers, it does not tell the full story of transfer, is only one small piece of writing practice, and does little to help us understand what is happening to students as they are writing. In fact, a micro-transfer perspective of writing perhaps helps explain more clearly why metacognition and other “awareness” strategies are useful because micro-transfer seeks to focus on students *as they write*, which is where these strategies are deployed.

Perhaps the most significant moment for transfer research was the Elon Research Seminar (ERS) and the special issue of *Composition Forum* (2012) edited by Elizabeth Wardle. While much research occurred beyond these two sites, they represent both a culmination of past research on transfer and a starting point for future research. Spanning two years, the ERS created a space for scholars from various institutions to research and collaborate on transfer. The work of this seminar generated four major categories of transfer research that again focus on different elements of transfer. The first of these categories is the “Biological Models and Dispositions,” which investigates the interactions between individuals and networks (“Elon Statement on Writing Transfer,” 2013). Disposition is a term drawn from Bourdieu that can be seen as a *habit-of-occupying* a particular field in space and time. For instance, Michael’s habit of occupying the space of being asked questions—both in class and in interviews—involved both determining what the question was asking *and why it was being asked of him*. Since habits-of-occupancy orients people relative to the world around them and to educational encounters, and since that orientation seems to determine how effectively transfer occurs, understanding disposition as part of transfer makes a good deal of sense. Driscoll and Wells

(2012) illustrate the multifaceted nature of disposition and point out four characteristics that are important to transfer, specifically their habit of assigning value to the learning moment, their habit of ascribing agency to themselves, their habit for “attributing fault,” and their habit of regulating themselves. In the same issue of *Composition Forum*, Elizabeth Wardle (2012) also focuses on student disposition, promoting those who approach questions as an opportunity to explore rather than answer. Her discussion is reminiscent of Sternglass when she argues that writing helps students develop “questioning” dispositions rather than “complacent” ones (p. 295). The “boundary-crossing” and “boundary-guarding” that Reiff and Bawarshi discuss in their study describes students’ disposition in encountering new writing tasks. Transfer research illustrates the importance of disposition, and generally speaking, students with dispositions to ask questions, keep an open mind, and seek value in the particular activity will be more inclined towards “high-road” and effective transfer, whereas those with more rigid and less curious dispositions will be more inclined towards “low-road,” “zero,” or even “negative” transfer (Nowacek, 2011; Perkins & Salomon, 1992). Clearly disposition is important to transfer, and micro-transfer research, as presented below, sets out to investigate how dispositions form.

The ERS also describe theories of transfer that focus on “communities of practice” and “threshold concepts (“Elon Statement on Writing Transfer”). Communities of practice are groups of people who share similar activities and where learning often occurs through a mentor-apprentice sort of relationship. Threshold concepts are pieces of knowledge that are at the crux of understanding everything else within a particular field. Adler-Kassner, Majewski, and Koshnick (2012) illustrate this notion by discussing the threshold concepts of writing and

history. As the name implies, threshold concepts provide people with paths across the liminal space between discourses.

The final theoretical trend that ERS points out is Cultural-Historical Activity Theory (CHAT), which extends work by Russell, Engeström, and others on Activity Theory (“Elon Statement on Writing Transfer”). This approach differs from the first approach in that while ecological theories of transfer focus on the interactions within an environment, AT focuses on the activity systems that connect people, materials, and discourses. These two approaches are compatible if we imagine the activity systems as the conduits through which interactions occur. In CHAT, transfer largely means learning to integrate with new activity systems by learning its tools and the features of its discourse. Much of genre theory fits well into this category because it describes the specific patterns of rhetorical activity that are available in a particular activity system. For instance, “Patient Medical History Form” helps “organize and generate the social and rhetorical environment within which the patient and doctor use language to interact and produce meaningful, situated action” (Bawarshi, 2003, p. 83).

A challenge to teaching elements of activity systems in a writing class comes in the form of Wardle’s (2009) critique of “Mutt Genres,” which when extracted from their natural activity systems and performed in FYC cease to be the same genre and therefore don’t serve to prepare students for the real thing. Further, it is questionable as to whether young instructors, often only graduate students themselves, are qualified to teach the genres of activity systems of which they are not a part (Smit & Hesse, 2007; Wardle, 2009). Angela Rounsaville (Rounsaville, 2012) draws on Anne Freedman’s (2002) notion of “uptake” to counter this, suggesting that practicing unfamiliar genres in FYC, even if they are mutt genres, allows students to practice

uptake of unfamiliar genres. Rounsaville points also to Amy Devitt's argument that antecedent genres provide students with resources to perform future genres.

These theories all provide substantial insight and effectively describe various facets of transfer—it is a complex phenomenon, after all. Still, there are aspects of transfer that clearly require further investigation, particularly the notion of “boundary.” Nearly all discussions on transfer reference or imply a boundary that acts as an obstacle to transfer that is to be surmounted or traversed or circumnavigated. It is perhaps this interest in “boundary” that differentiates transfer from learning. However, more could be done to understand how boundaries are drawn and redrawn over time. Another area of transfer that needs more study is the moment-to-moment interactions that students go through as they learn or go through the experience of transfer. This close focus is worth pursuing because transfer has generally been seen the phenomenon as the movement from one context to another—from high school to college or from college to work or from FYC to the majors. Further, the boundary in transfer has often been seen as the one between disciplines, which I describe as a discursive (and perhaps physical) boundary in chapter 3. As a result, transfer research has largely been longitudinal. One notable exception to this longitudinal approach is Nowacek's study that captures a “thick slice” of her informants' experiences over one term. This close look allows Nowacek to argue that transfer is a rhetorical action, meaning it is about the ability to integrate into a new context through effective persuasion. The study presented below also sets out to look at transfer more closely by trying to pay attention to the moment-to-moment interactions where students live. These micro-transfers are crucial because they are where dispositions form and because it is through a series of moments that students learn and move from one context to another.

Moreover, by focusing in closely on specific interactions that occur as students are learning, it is possible to better understand the boundary-work that is part of learning and human experience in the world. In fact, this study set out to focus primarily on transfer and the interactions that occur as students live in the world, but what ended up appearing more visibly in the data was the boundary-work. Boundaries are not simply lines between discourses or material environments but rather are the features that give the material and discursive world definition and make them recognizable to the people who live there. This is crucial for understanding learning or transfer or anything else that occurs in writing because as recent studies on network and ecology in Writing Studies suggest, the world around the student has as much to do with the student's learning as does the specific material to be learned or the way that material is delivered. There is much to unpack here, and I make this my point of departure into a new perspective on the work that occurs in the writing class.

### **Micro-Transfer and the Rhetorical Ecosystem**

As I discussed in the previous section, boundaries are a central concern for transfer research, either explicitly discussed as is the case in Reiff and Bawarshi's study (2011) or implicitly in many of the other studies insofar as they interest themselves with movement between discrete disciplines or classes or spaces of writing. The major difference between the various theories of transfer and the responses to the phenomenon is in how they account for the ways in which people encounter, transcend, cross, or traverse boundaries. While boundaries are an inevitable concern when thinking of transfer, they are often taken for granted or as given; transfer studies focus primarily on the student or perhaps the student and the contexts, but not the boundaries themselves. The notion of "near" and "far" transfer do

suggest that some boundaries are different from others, but this does not allow us to sufficiently understand their nature, how they form, and what effects they have on people. I suspect that this is a natural consequence of the humanist perspective that has dominated our field, focusing our attention first and often solely on the individual student and what the instructor and writing class can do for that student. This emphasis on the individual is so deeply engrained that it is difficult for us to even use language that doesn't focus attention on individual actors. Individualism, and humanism more generally, is certainly understandable and is not necessarily problematic. Individuals *do* experience transfer in an individualistic fashion. If a piece of writing receives critical feedback, the writer will certainly feel like they (not their audience or network) failed, and when we talk about unsuccessful transfer we say "*their* transfer was frustrated" using "their" as the third person singular possessive avoiding gendered pronouns. In a sense, without doing some syntactic gymnastics, it is very difficult to talk about transfer (and writing, more generally) in a way that is not focused on the individual or individuals. After all, when I taught a FYC class themed around interrogating the notion of the individual and the human, on the first day a student said, almost shouting, "But I don't want to give up being a human." Some post-humanist theorists have significantly questioned whether an individual exists at all—at least as a discrete unit of analysis—suggesting that perhaps it's simply a convenient "habit" that has become an inevitable part of our language (Deleuze & Guattari, 1987, p. 3). In other words, if the individual themselves are constituted as a position within a system of relations that is discourse, as Foucault (2002) might suggest, then perhaps transfer has more to do with discourse than it does with the constituted individual. Along similar lines, a focus on the individual encourages us to focus on changes in the individual and

movement of the individual through space and time. However, I'm not ready to give up on the notion of the individual entirely. Phenomenologically, we do experience the world as individuals and so the individual remains a valuable construct. That being said, it is worth looking beyond the individual to the boundaries that exist in space and discourse that define the individual and the world.

Another reason that we have not paid sufficient attention to boundaries in transfer research is that we often see the context as generally stable and the individual in motion. Henri LeFebvre (1991) takes post-modern theorists to task for assuming that the context is simply a container for human action rather than possessing its own agency. Jarratt et al. (2009) provide a fine example that supports LeFebvre's general argument. In their study, a focal participant had their FYC class in a "trailer" building, which substantially hindered their ability to take the class seriously and created a sense of alienation. The space prevented the student from seeing any value in the FYC course and therefore frustrated the student's ability to learn much that would serve them in future writing contexts (pp. 63-4). Jarratt et al.'s study, however, focuses on the memory of the trailer more than the specific interaction with the material boundaries that defined the space as a trailer. The focus on memory is valuable, but it is also important to consider the space and not just the memory of the space. In other words, how did the trailer interact with the student to form a boundary that prevented the student from taking up the material from the class?

Part of the way to shift focus onto the boundary is to take even more seriously the spaces and the boundaries themselves. In the former sense, Jarratt et al. do recognize that the material environment has an effect, but that effect is produced predominately in the memory

of the student. Since memory occurs across the span of time, we might tend to focus exclusively on the way that memory changes across a longitudinal span and not on how memory produces particular kinds of boundary-work in any given moment in time. In other words, we might look at the effect of the trailer on the student across time, but not the effect of the trailer on the moment and all the moments in which learning is taking place. Focusing on these moments is crucial because while transfer certainly is a factor in movement from high school to college, or FYC to the disciplines, or university to a career, our experience occurs on the moment-to-moment scale, and so that is where learning occurs and where boundaries are marked. I've used the term boundary and boundary-work for a number of pages, and now I want to specify what I mean.

Boundary-work is a well-developed term in the social sciences and describes the kinds of work that occurs in boundary spaces, often between cultures, in which difference is negotiated (Lamont, 1992). In Writing Studies, boundary-work is often associated with literacy ((Lu M.-Z & Horner B, 2013), transculturalism (Guerra, 2008), and basic writing to refer to the way under-represented students negotiate the boundaries between past communities and academic communities. Major connections can be made between discussions on translingualism and transfer, which Leonard and Nowacek (2016) in their recent article that ends by inviting others to extend this connection. I see micro-transfer as a good avenue for investigating the discussion between translingualism and transfer because they occur in moments when language is being used. However, I will leave that line of inquiry for future research.

<HERE> Boundary-work generally Boundary-marking is an intriguing part of boundary-work that helps us understand how boundaries are constituted and the function they serve. A

boundary serves several functions. It can serve as an obstacle or a frontier across which information and people might or might not move. However, it also does the work of defining the nature of the bounded entity. A boundary that includes a set of shared practices, ideas, conversations, and people is what defines a field. At the same time, that boundary also identifies everything else. For instance, the boundary that defines Literary Studies when it's marked usually includes the practice of close reading using some critical theory as a lens. It also usually excludes, generally, ethnography. One could certainly make an attempt to do so, but they would be re-marking the boundary line of Literary Studies to include ethnography. The ability for someone to exert that kind of force would depend on what position they occupy within the field. Beyond differentiating fields, boundaries exist to differentiate or define ideas, identities, and other elements of the material and discursive world. Boundaries around ideas are a little more subtle. Revision provides a good example. Many Writing Studies scholars are highly interested in revision, particularly those interested in understanding and teaching elements of the writing process. Revision is defined by a boundary line that includes a specific set of practices and moves. Studies illustrate clearly that where this boundary line is drawn differs for different types of writers (Sommers, 1980; Sommers & Saltz, 2004). Depending on where this boundary is drawn, individuals take up and perform revision in different ways. Likewise, boundaries identify individuals within a particular community. For instance, we might see the shift that occurred with Michael after his instructor offended him with the attendance question as a shift in the boundary line that defined the instructor from Michael's perspective. Additionally, the boundary between Michael and the class, or the line which identified him as

an individual participant within the class changed thereby preventing the easy flow of knowledge and information that had occurred previously.

When we look at boundary-marking, it's important to note that this is an iterative and constant activity producing, to varying degrees, flexible boundary lines that define communities, ideas, and people. Karen Barad (2007) provides excellent insight into our discussion of boundary-marking that draws on research from quantum mechanics and feminist studies. Her theory is just beginning to be taken up by writing scholars interested in new materialist rhetoric (Guerra, 2015; Pflugfelder, 2015; T. Rickert, 2016; Villanueva & Arola, 2011). Barad introduces the theory of "agential realism," which is an ontology that accounts for both materialist and post-modern theories. In this, Barad takes up both the perspective that sees the world as iteratively constituted through the activity of discourse but at the same time is composed of real, material things, not just language. I want to cite her at length as this is central to the boundary-work I'm discussing here:

*[P]henomena are differential patterns of mattering ('diffraction patterns') produced through complex agential intra-actions of multiple material-discursive practices or apparatuses of bodily production, where apparatuses are not mere observing instruments but boundary-drawing practices—specific material (re)configurings of the world—which come to matter. (Barad, 2007, p. 140)*

Barad says much here. As commonly used, "phenomena" are things as we know them such as disciplines, desks, people, and ideas. These phenomena are demarcated, individuated, and therefore defined through the drawing of boundaries. These lines are remarked as the world goes through the moment-to-moment "(re)configurings." Apparatuses refer to the material and

discursive regions between which the “intra-actions” occur that mark these boundary lines that define the world. Or in Barad’s words, “specific material reconfigurations of the world do not merely emerge in time, but iteratively reconfigure space-timematter as part of the ongoing dynamism of becoming” (p. 142). For example, if we consider the phenomenon of the desk I’m presently writing at, the desk is a meaning-matter combination, or meaning-infused matter, that exists as such for the moment because of a particular interaction that occurs between all of the elements of the environment. This interaction marks the boundary that defines it as *my* desk—a specific, real, and particularly meaningful object.

Barad provides a particularly useful addition to the work already being done in Writing Studies on complexity (Hawk, 2007), hydrodynamics (Dobrin, 2011), writing ecologies (D. Dryer & Peckham, 2014; Fleckenstein, Spinuzzi, Rickly, & Papper, 2008), and network (Spinuzzi, 2008) because she incorporates the world beyond language in a very serious way. For Barad, the world is a “world in becoming.” Her theories are not just metaphors but describe a “real,” substantive world. The boundary-marking practices that iteratively define the world are crucial for transfer because they allow us to consider boundaries not as pre-existence phenomena but rather as constantly being redefined through the negotiations between discourse and matter. The implication of this is boundaries are not “out there” waiting to be crossed or guarded but are being defined in real-time. As a result, students attempting to integrate into an unfamiliar discipline are not actually crossing into an already-bound and demarcated discipline. Instead, they are participants in the boundary-marking work that defines that discipline. Certainly, a student facing institutional and human memory, along with the various power dynamics at

work, likely can exert less force in the marking of the disciplinary boundary. That said, they are still participants with some agency.

To help focus attention on this kind of boundary-work and help us look at the moment-to-moment interactions, I want to propose a relativistic shift in our conceptualization of movement in transfer research. Traditionally, we've seen transfer as the movement of an individual or set of ideas, skills, and knowledge from place-to-place. Instead, I suggest we think of transfer as a phenomenon of *space moving around people*. For FYC this would mean that the field of high school recedes and the field of the university washes in. This is not without precedence. King Beach (1999) proposes the notion of "heterochrony," which states, "the general rate of change for individuals is less than that for activities, which in turn is less than that for societies" (p. 124). In other words, the world around an individual changes much more rapidly than the individual themselves. This is relevant to transfer and the relativistic shift I'm proposing because it allows us to focus on the dynamism of the world, the stabilizing effects of the individual's memory, and their need to continuously participate in boundary-work. One need not depart from academia to find examples of this. For instance, when we see scholars who have been in their fields for decades, we notice that some keep pace with changes in the field and continue to make contributions to it, whereas others who don't remain rooted in a field that exists predominately in their memories, and so they gradually fall out of the disciplinary "world-in-becoming." I would argue that this struggle to remain relevant is just as strong an example of transfer and just as great a concern for transfer research as the first-year college student attempting to work their way into the university. When we look at the movement of transfer from this perspective, it becomes easier to focus on the boundary-

marking that occurs constantly across time. As individuals remain closely fixed to a particular spatio-discursive location and interact regularly with familiar elements of the rhetorical ecosystem, they develop memories and dispositions that make their role in the interactions more effective.

Focusing on boundary-work and the moment-to-moment interactions that define our world is useful in that it allows us to direct our attention to the smaller scale *where dispositions form*, where writing occurs, and where people live transfer. The micro-transfers that occur from a series of boundary-marking actions accumulate in a sedimentary fashion to form individuals' dispositions. Sedimentation is a term that Lu and Horner (2013) explain with their reading of Judith Butler's concept of "social iterability of practice," which "emphasizes the conditions of possibilities of gradual sedimenting of alternative conventions—collective uptakes across time and space—of new meanings and functions" (p. 596). In other words, language develops through repeated patterns that sediment over time. Sedimentation occurs through the interplay between language and the material conditions of the world, or as Barbara Johnstone (2002) puts it: "discourse is shaped by the world, and discourse shapes the world" (p. 10). If we take this further following Barad's theory, the interaction between discourse and world is not an interplay between discrete units but between entangled elements of a larger apparatus. While these scholars are talking about the sedimentation of language, this same kind of sedimentation occurs around disposition. Some stability or patterns form through the constant becoming of the world as a result of continual boundary-marking and (re)marking. These patterns are inscribed in memory and disposition, explaining how we might see stability in a world that is constantly (re)becoming. I argue above that we might see disciplines as only

existing as bounded and discrete entities as they are demarcated in real-time, yet at the same time, despite efforts for interdisciplinarity, these boundary lines are marked in a fairly regular place. Dispositions that are not overly protective of memory and tradition, those that are the result of engaging with various discourses regularly, are likely more beneficial for transfer.

Since we experience boundary-work constantly, and since each boundary marking develops memory and disposition, I want to conclude this section by unpacking the notion of micro-transfer. Micro-transfer in no way is intended to supplant transfer research but rather to extend it by looking closer. Micro-transfer refers to the effect each boundary-marking act and each resulting boundary has on subsequent boundary-markings. For instance, we might look at Michael's interaction with his instructor over the attendance question. As the question was being asked, a rigid boundary was marked between Michael and the instructor and course. The question was defined as "inappropriate," the instructor was defined as "offensive," and Michael was defined with increased distance from the class. This single moment affected the way in which Michael could interact with the class for the rest of the quarter, as I explained above and once a negative trend began, it accumulated to a total lack of respect for the instructor by the end of the term.

Boundary-work and micro-transfer are useful because they allow us to focus on the nature of the boundaries themselves rather than specific knowledge and skills that students must recontextualize. It also allows us to consider the moment-to-moment interactions that occur when one integrates into a community. The boundary is crucial because it determines how rhetorical force can flow, what kind of force the student can exert on the community, and how future boundaries will be marked. When we judge an individual's effectiveness in transfer,

we are really looking at their ability to engage effectively with the apparatus of which they are a part. Additionally, when we consider micro-transfer as well as boundary-work, we shift the onus for effective transfer from the individual only to *the individual and the context*. This is particularly relevant in work with groups, like veterans and first generation college students, who already face particularly challenging transfer environments. In addition to working to help people gain agency over their integration, we can do more by working with how students participate in the boundary-marking apparatus and *by advocating in the community to promote openness and acceptance of difference*. Openness promotes boundary-marking work that honors students' various literacy practices.

In the next chapter, I will further discuss the theory of boundary-work and introduce the research methodology that this study uses to attempt to analyze boundaries. A major component of the research method is grounded theory, which informed the process of this study heavily. Initially, I set out interested in studying how rhetorical force was exerted in the space of a class and how those forces might affect student learning. A grounded approach allowed me to release these initial interests and follow where the data lead. In Chapter 3 and 4, I present analysis of the results. I begin with what I discovered later, specifically the differences between boundaries in different fields of being. This notion of differentiating the fields stemmed from inconsistencies in the data that seems to be well accounted for by the location where a boundary formed. In Chapter 4, I identify a spectrum that identifies boundaries based on their flexibility and permeability. Chapter 4 concludes with a brief discussion of micro-transfer. Finally, Chapter 5 discusses the limitations to this study, implications for teaching and implications for future research, and a brief conclusion.

## Chapter 2. Writing Spaces and Spaces of Writing: Theories of Network, Ecosystem, and Entanglement.

*Unscrew the locks from the doors!*

*Unscrew the doors themselves from their jambs!*

~Whitman (1954, p. 67)

In the previous chapter, I suggested that a necessary additional focus for research on transfer that has already yielded substantial and interesting results is a focus on the moment-to-moment interactions that occur through the boundary-work that occurs in a writing class that accumulate to become what we have traditionally seen as transfer. This allows us to look at the phenomenon of transfer not as something that only occurs between major changes in context, but something that fundamentally occurs where students live. This study set out to investigate transfer very closely to examine how these moment-to-moment interactions work and what important factors are in regards to students learning in a writing class. I have already mentioned Michael, one focal participant who actually will not show up in the data chapters to any great extent because he failed to turn in all the agreed upon materials. Michael was a student in Gorgias' class. I introduce Gorgias at length later in this chapter, but for now, he was the instructor for the English 131 section I observed. He was a graduate student TA and had taught FYC at other institutions before. This was his third term teaching FYC at this university. Michael's case pretty quickly illustrated to me the need for this approach to studying transfer. If I had followed a more traditional approach, likely he would have been a positive example of effective transfer as he appeared to have what we would consider a highly transfer-positive disposition. That being said, in his moment-to-moment interactions in class, he rejected much

of what Gorgias taught and the activities Gorgias assigned as a result of what seemed to be one interaction over an attendance question.

In this chapter, I outline a theoretical perspective that responds to current trends in ecological and network theory in Writing Studies as well as the gradually developing analysis of the data that I collected in this study. This study started off with the goal of following the movement of a small group of students through two sections of FYC at the University of Washington to try to determine the kinds of interactions that occur during that educational intervention and the results on students writing and the various skills that we have found to be valuable in Writing Studies (e.g. metacognition, rhetorical awareness, rhetorical strategies, etc.). I framed the study in the following question and subquestions:

1. *How do transitions provide an opportunity for regrounding in academic discourses and what effect does this regrounding have on students' performance of disciplinary genres?*
  - a. *What grounding do students enter the university with?*
  - b. *What happens to students as they transition into the university community?*
  - c. *What interventions does FYC make in helping students reground?*
  - d. *As students reground themselves, what development do we see in their writing by looking at their performance of disciplinary genres?*
  - e. *What research methods and strategies allow us to see transition and regrounding, and if so, what does it look like (what should future studies look for in tracking it)?*

These questions suggest a very traditional study on transfer, seeing it as a trans-disciplinary phenomenon or something that occurs as a student moves from one discipline to another.

However, as the results will illustrate below, transfer only occurs in this large, linear fashion from the perspective of researchers who conduct longitudinal studies with contact with study participants occurring at distantly spaced intervals.

I rapidly moved away from these questions with the hopes of looking more closely. The kinds of interactions that occurred in the classrooms, particularly due to the regularity of my attendance and interaction with focal participants, quickly justified the kind of close look I was taking. Just as Nowacek (2011) attempts to capture a “thick slice” of student experience in her study, I also sought to gain a thicker understanding of how transfer works. Instead of trying to capture major changes over time, I wanted to see what was happening where students are as they live through a writing class. It turns out that even my approach did not look closely enough, which I will discuss during the final chapter on limitations. In designing this study, I was greatly influenced by the outstanding “cartography” work in rhetorical studies (Cintron, 1997; Dingo, 2012; Jeff Rice, 2012; Jenny Rice, 2012; Soja, 1996; Spinuzzi, 2003, 2008). Cartography is compelling because it does not attempt to trace one, linear path, but rather attempts to create a map that might be intersected by many routes and other features of the environment. While the cartography metaphor does fall apart because the kinds of spaces that exist in a writing class are perhaps insufficiently stable to be mapped, the notion of looking across the landscape was compelling and did guide me as I developed the approach in this study.

In the next few paragraphs, I want to make as explicit as possible my research method. This is important in part because of the limitations of this study, which I see very much as a proof of concept and a tentative first step into a new way of studying learning in a writing class (or elsewhere). Also, some have criticized social science research for not sufficiently articulating

the research methods raising questions about the reliability and validity of the results (Smagorinsky, 2008). This concern over reliability and validity is a major one for social science researchers who often have less formalized methods than those present in the hard sciences (LeCompte & Goetz, 1982; Smagorinsky, 2008). LeCompte and Goetz (1982) explain, “[w]hile reliability is concerned with the replicability of scientific findings, validity is concerned with the accuracy of scientific findings” (p. 32). Reliable results could be reproduced by reproducing the conditions that produced them and therefore is closely tied with experimental research.

Validity on the other hand depends upon the ability for findings to accurately represent and explain the phenomenon in question. Recently scholars in Writing Studies have suggested that writing scholars might do more with RAD research, or research that provides reliable, data-based results (Driscoll & Perdue, 2012; Haswell, 2005). While the goal of producing reliable results is important and worth pursuing, it is also important to be aware of what kind of results a particular approach can yield and what kind of arguments can be made based on those results. The potential problem with RAD research in Writing Studies, and social science research more generally, is that when we investigate social phenomena, particularly as they are occurring, we cannot hope to have reliable data. In other words, another researcher could follow a similar approach as I do in this study and yield very different results. We are investigating situations that *cannot be replicated. Since the study of social phenomena in situ is by nature and necessarily not experimental, we must accept validity as sufficient.* That being said, the goal of producing more soundly grounded results, results based on data that is to some degree generalizable, is laudable.

I suggest we be very clear in our methods sections about what sort of research we are conducting and to what degree these results are valid, reliable, and generalizable. Experimental, reliable data is likely to be more generalizable, and so making sweeping claims is more possible. Observational data, however, is contextual, it cannot produce general claims about the phenomenon, but it can produce precise, thick explanations of the phenomenon. Experimental and observational are not the only two lines that might be drawn. We might also draw a line between quantitative and qualitative studies. While experimental research may be a difficult tool to use to understand a social phenomenon like writing and micro-transfer, reliability can be increased through quantity. Ideally, writing studies might tuck between qualitative and quantitative methods. A qualitative pilot study, like the one here, might present valid results, and more importantly might produce specific things to look for in a quantitative study. For instance, a pilot study might reveal that focal participants develop increasing lexical density and increasing use of metadiscourse as they develop a more transfer-positive disposition. Researchers might then look for metadiscourse and lexical density in a corpus driven study to determine whether this remains true for the general population or if it was an idiosyncratic feature of the pilot study participants.

In the first chapter, I discussed the tendency to use longitudinal approaches to studying transfer as a macro-phenomenon (Beaufort, 1999; Chiseri-Strater, 1991; Sternglass, 1997). While these studies provide significant value not only in how students recontextualize knowledge and skills between disciplines, I take a different approach to attempt to look more closely. To do this, I followed focal participants through one quarter hoping to have increased contact with focal participants. As this study has developed theoretically and methodologically,

so have the questions that I reference above. It has condensed to a threefold goal: First, to develop a method to conduct research within the perspective of the rhetorical ecosystem or apparatus I discuss above, especially a method to trace boundary-work that occurs iteratively within and giving definition to the ecosystem. Second, to gain a better understanding of the day-to-day micro-transfers that do the major sedimentary work of disposition building that are crucial to transition or transfer. Finally, to root the theory of writing in valid empirical data. The research questions guiding this study fall under an overarching question: What is the nature of the spatio-temporal discursive context which allows writing to be produced and how does the boundary-work constitute simultaneously the writer and the writing iteratively across time?

To address this question, I focused on the following sub-questions:

1. How is writing produced within a material-discursive context and how do the various elements of the environment contribute?
2. How is the “writer” constituted, and how does the boundary that defines this individual affect their ability to act and perform writing?
3. What is the relationship between boundary-work, writing, writing instruction, and the writing class?

These questions are large and fairly abstract, and to address them I focused on a number of things in my interviews, observations, and textual analyses:

1. The interactions between bounded regions of a rhetorical ecosystem—as the data show, this includes material objects, discursive objects, and individual people.
2. The rhetoric produced within the classroom setting that negotiates between and establishes the boundaries that define the rhetorical ecosystem.

3. The various rhetorical forces exerted in the classroom and in relationship to the class.

I was initially quite compelled by the notion of rhetorical force, and while I did see the effects of it, it was less interesting than the boundary-work that occurred. As a result, the data of this study demonstrate the boundary-work that shapes micro transfers. These questions developed through an interaction between the data analysis and a deepening understanding of the theory of the field. Before I outline the specific steps I took for collecting the data, I will review that theory as I understand it now. This will hopefully explain my interest in boundary-work and why this matters to transfer research and Writing Studies.

Early in the data collection phase, I encountered Elizabeth Wardle's (2014) review essay of the field of Writing Studies, which is really an effective stock-taking of the field of Writing Studies and begins with four questions: "What exactly is *composing* or *writing*?...What should people teach and learn in *composition classes*?...*Who* is being taught in composition classes? [and] *Who* is doing the *teaching* in composition classes, and what is their expertise?" (pp. 659-60). The first question echoes Sid Dobrin's (2011) critique of the field, specifically that we spend too much time concerned with teaching without having a solid understanding of what writing is. Wardle (2014) simply answers, "Composing is a rhetorical act" (p. 662). However, this is not a particularly useful answer because we have generally agreed that composition is rhetorical insofar as composing, and writing, are social, meaning-making activities that attempt to exert force on or persuade their readers. However, it does point us to some interesting questions. Specifically, how does this rhetorical force flow through the composition? While I set out to examine the rhetorical force, the data illustrated boundary-work and micro-transfer. This force is certainly implicated in boundary-work ("work" being an exertion of force to accomplish

something) and micro-transfer (the way force is maybe passed across space and time). In the remainder of this section, I am going to lay the foundation for the notion of boundary-work and micro-transfer by drawing on recent scholarship on theories of network, theories of ecosystem in rhetoric, and quantum theory.

Until recently, Writing Studies has retained humanist tendencies, most importantly focusing predominately on the individual writer and writing as rhetorical action through which the individual writer attempts to move audiences in one way or another (generally, in FYC, to move audiences to give them a high grade). Certainly writing is rhetorical, but I am arguing, as I suggested in the previous chapter, that we might do better to understand writing as a part of the world-constituting boundary-work of a rhetorical ecosystem or network that defines the world, the writer, and what can be and is written. When we look at the individual writing, it is too late because the writing, the writer, and what can be written has already been determined in the very constitution of the world through the boundary-work of what Barad (2007) would call the apparatus, but I think might better be called the world itself. This limited view has begun to shift recently as scholars have begun to introduce new metaphors for understanding writing. Specifically, theorists have introduced the notion of network and ecosystem as metaphors for contexts of writing and the real writing subject. I see these metaphors responding to a concern of the constitution of the writing subject (namely, the “writer”) stemming from the post-modern turn. For instance, Susan Miller (1991), who is echoed to a large extent by Sharon Crowley (1998), challenges Writing Studies for its work to discipline student writers into docile, middle-class subjects. In other words, teaching students to write is an ontic practice. David Bartholomae (1986), James Paul Gee (2011), and Patricia Bizzell (1978)

borrow from Michel Foucault's (2002) theory of discourse to suggest that members of the academic community perform identities available within the system of relations that is academic discourse (and perhaps more precisely, disciplinary discourse), and student learning is the process of acquiring those disciplinary identities. Lester Faigley (1992) explicitly discusses the write as a post-modern subject in the post-process landscape of Writing Studies and concludes that a focus on rhetoric and ethics, and specifically the ethical subject, is vital for us to understand writing in a complex, networked age.

This post-modern concern for the way in which culture or discourse constitutes the writer and makes writing possible is an important foundation for understanding network metaphors for writing. Foucault (2002) describes discourse as a system of relations that allow things to be known and statements to be uttered. He writes, "one cannot speak of anything at any time...[objects exist] under the positive conditions of a complex group of relations" (p. 75-6). This "group" is translated from the word *faisceau* (Foucault, 1969, p. 61). Often when we refer to discourse we speak of a system or a group or even more recently a network. However, there is a crucial distinction that gets lost in translation. The sense of network, as in a network of roads or wires or cables, would be *réseau*, whereas *faisceau* is better translated as first "beam" as in beam-of-light or "bundle" as in bundle-of-sticks. Bringing these two definitions together we might see discourse as a complex bundle of light beams. While this might seem like splitting hairs, the distinction is crucial. A *réseau* and our sense of network exists out there—prior to anything moving along it. A network of roads exists without anyone driving along it, but it provides a round for us to drive. A *faisceau*—in the bundle of light sense—only exists when some source is emitting energy, and for this to be a bundle, it exists when a set of sources emit

energy simultaneously from various positions in various intensities towards various targets which might reflect, absorb, or redirect it or a combination of the three. Perhaps like a laser-light show?

The distinction that I am pointing out here is crucial because it implies that discourse is not something that exists prior to action but rather is constituted through the actions that various participants perform in a given moment as determined by the configuration of the field. I suggest that boundary-work helps explain this notion of discourse, and since boundary-work is interactive and not the product of isolated individuals it's important to consider the kinds of interactions that exist, particularly in a space like FYC where students are often learning to interact with an unfamiliar discourse—academia. For instance, when a writer sits down to write, they do not invent the university; rather, the boundary-work that is iteratively defining the world constitutes the university, the writer, and the writing in response, in part, to the rhetorical situation that called that writing into being.

While post-modernist theory is useful in helping us understand a world that is becoming, it has led to a gradual movement away from the material. Seeing this problem, Henri Lefebvre (1991) takes post-modern theorists to task for ignoring the agentive nature of space. While Lefebvre does not challenge the general idea of knowledge being the product of a system of relations, he takes social theorists to task for presuming that space is a neutral container in which the social functions. Instead, he argues that space is an active participant in the production of meaning. Along with Lefebvre, many other theorists have worked to return a concern for space to social theory (Bourdieu, 1977; Certeau, 1984; Habermas, 1984; Soja, 1996). Rhetorical theorists have also done much to consider the importance of space either

metaphorically or literally (Bitzer, 1968; Burke, 1969; Consigny, 1974; Toulmin, 2003; Vatz, 1973). What is important in this discussion as a foundation for the theories of rhetorical network and ecosystem in Writing Studies is the idea that writing (and meaning making more generally) occurs *within a context as a result of various elements of that context interacting to determine the specific text that can be produced and the subject that produces it*. All of these elements of the context are participants in and differentiated by boundary-work.

In the context of these traditions, network and ecosystem are emerging as important metaphors for understanding how writing works. The terms ecosystem and network are sometimes used interchangeably, but I want to draw a distinction between the two. Network theories of rhetoric emphasize the *connections* that form when writing occurs, which in turn constitute the writer and the text that is written. This follows closely Foucault's notion of discourse, as I discussed it above. Ecosystem theories emphasize the spatial nature of writing allowing us to consider not just the force exerted by the writing event but also the spatiotemporal context through which that force ripples. Further, networks provide for linear connections between nodes whereas ecosystems provide for dispersed connections across the surfaces of demarcated regions within the field. By linear, I mean that the connection between nodes is discrete whereas dispersed connections overlap one another in a sort of multi-layered Venn diagram. In other words, the network perspective focuses our attention on nodes and connections retaining a sense of individuation. The ecosystem perspective can retain a sense of individuation, but lends itself to a view of the interconnectivity of the entire context. This distinction will end up being important in the discussion of "transfer" throughout this study, but for now, I will work on a dialectic between these two theories before I venture further. By

integrating theories of network and theories of ecosystem, I hope to better account for the boundary-work that occurs in the data below and suggest the virtue of studying transfer as a micro-phenomenon.

Network theory can be divided into two major variants: Actant-Network Theory (ANT) and Activity Theory (AT) (Latour, 2007; Jeff Rice, 2012; D. R. Russell, 1997; Spinuzzi, 2003, 2008). In developing ANT, Bruno Latour (2007) was concerned with research on the “social” which freezes activities of a network in moment of time, which he suggests misses the point of studying the social. Latour resists the move to group and categorize social phenomena and instead argues that we can “learn how to trace....many social connections” (Ibid, p. 34), giving us a better sense of the social as an active, flowing phenomenon. This idea of tracing allows us to move away from taxonomies that miss the active and fluctuating nature of interaction. The challenge with ANT is that the network it seeks to describe fails to account for the stability that does exist (in genres, for instance). AT responds to this weakness by focusing on activity systems which are “ongoing, object-directed, historically-conditioned, dialectically structured, tool-mediated human interaction” (D. R. Russell, 1997, pp. 4–5). This theory provides a way of studying a network stabilized by historical conditioning and tool mediation. Traditions, institutions, memory, and genre act as forces that account for much of this historical conditioning. Material tools change relatively slowly and influence how interaction can occur. For instance, as I write, I am constrained, among other things, by the materiality of my keyboard. Additionally, the material environment plays an active role in stabilizing the network. Both LeFebvre’s (1991) and especially de Certeau’s (1984) analysis of the city illustrate the active role that the environment plays. Change in built environments, for instance, changes the

kind of networks that can exist therein. We can clearly see this in classrooms with auditorium style seating versus classrooms with movable desks. If writing is one kind of *work* that networks perform, then we might consider tracing networks to see how writing stems from them.

AT and ANT both offer useful perspectives, but it is useful to try to find some space between the two. Clay Spinuzzi (2008) does just that when he creates a “dialogue” (as opposed to a “dialectic”) between them “to exploit the tensions among these different understandings of network” (p. 8). While ultimately leaving this dialogue open, Spinuzzi’s analysis is productive and leads to an argument that “networks are understood as heterogeneous, multiply linked, transformative, and black-boxed” (p. 198). Spinuzzi retains ANT’s flexibility to account for change, but also effectively accounts for the stability offered by AT. I pause for a moment on the idea of a “black-boxed” network, which means that activity that occurs in various regions of the network remain invisible to the rest of the network. This concept is important and will be a major challenge both for researchers studying transfer and micro-transfer and for teachers and students who must in some way understand each other. In other words, perhaps it is the black-boxed nature of network that makes it so difficult for us to understand both our teachers, students, and study participants. This was something that stood out clearly in my data. There is a substantial amount of mutual ignorance between regions of the writing context, and much of the “failed” transfer is the result of ignorance and misunderstanding between these regions.

Spinuzzi’s other major contribution in this book is his discussion of the modes by which networks form. Specifically, he describes “splicing” and “weaving” which refer to the synthesis of various dissimilar nodes that already exist and to the gradual differentiation through specialization of similar types, respectively. “Splicing” would occur if I teamed up with experts

across disciplines to perform an interdisciplinary project. Each member would bring their specialization with them. “Weaving” would occur if I worked with a team of Composition researchers and each of us developed a specialized task as the project advanced. From this understanding of networks, I want to turn to Rebecca Dingo (2012) who demonstrates ways in which network theory can help us understand movement across a network. Dingo focuses on the rhetoric of “gender mainstreaming”—an argument for bringing women’s rights and a “gender perspective” to the center of public policy debates—and the way in which problematic rhetorics like neoliberalism and neocolonialism that hitch a ride to gender mainstreaming as it disperses across global networks, with the unfortunate result of contributing to the very inequalities and systems of oppression that are being addressed. Dingo’s approach—by focusing on specific rhetorics—is particularly useful to my project because Dingo illustrates the way in which they might be traced across time and space by looking at the material artifacts (texts, memories, etc.) that they leave behind.

Network has been a useful metaphor for thinking about rhetoric and writing, but a major challenge that is sometimes insufficiently addressed is the same as LeFebvre’s critique of post-modernism. Sometimes, network theory insufficiently accounts for the role that space and place play in the constitution and operation of the network.<sup>8</sup> Jeff Rice (2012) and Jenny Rice (2012) provide excellent examples of ways that space and place are part of the network. By tying their analyses to physical places (Detroit and Austin respectively), they take this concept of tracing and add the metaphor of cartography. By combining tracing and mapping, we can

---

<sup>8</sup> By “space” and “place” I mean the extra-human materiality that exists before human experience and its rendering through human experience, respectively.

develop a thicker understanding of how networks *work* in space and time. Network theory clearly has significant potential in helping us understand how boundary-work occurs and affects transfer. By understanding the relationship between various nodes within an FYC class or any writing context, we can better understand how those nodes interact to produce boundaries that define the people, spaces, ideas, and writing itself. However, network theory remains ultimately limited for a few reasons. First, networks retain a degree of individuation insofar as they are composed of discrete nodes and connections. While these nodes might be “multiply connected,” they are still individual nodes leaving the subject/object binary and the circumscribing boundary lines that individuate things from other things insufficiently deconstructed. In other words, as I discussed in the previous chapter, these boundary lines are marked through the boundary-work that constitutes the world-in-becoming. Hence, the operation of the network defined the nodes rather than the other way around.

Second, a network, as a net that establishes connections between narrow lines, implies that the rhetorical forces moving across the network follow linear paths rather than radiating like ripples across the field. In other words, if we think of a student writing a paper for a teacher, the implication of network is that the student’s paper only affects those with whom they are directly connected instead of rippling across and affecting all the writing that can be produced by the class. Both of these limitations create a narrowed focus that allows us to miss significant elements of rhetorical activity. I suspect that the features we don’t see when looking at rhetorical activity play an instrumental role in how writing and transfer work. Further, this study sets out to consider the boundary marking practices that occur while *and* before writing

and transfer occurs because this boundary work and the lines themselves determine the effectiveness of the writing and learning that a student experiences.

Fortunately, ecosystem metaphors of rhetoric help address the limitations of network theory. Like network theory, two approaches appear in what I'll call ecological theory—or theories of rhetoric, the social, and writing that concern themselves with the environment. The first we might rightly call “ecomposition,” and it focuses predominately on writing about nature and environmentalist ideology. Peter Goggin’s (2013) collection, *Environmental Rhetoric and Ecologies of Place*, provides some fine examples of this approach. While a concern for the environment is laudable, and one that I share, and while it does take a step towards considering rhetorical ecosystems, I will not be using it as part of my study’s theoretical framework because it insufficiently theorizes the relationship between environment and rhetoric and because I am not engaging with environmentalist rhetoric here. The second approach sees writing itself as the product of an ecosystem, which means that the writing agent becomes dispersed across the context in which the writing is produced. Instead of calling this “ecomposition,” we might call it ecosystem-theory as it uses an ecosystem to describe the system that produces writing. Kristie S. Fleckenstein et al. (2008) demonstrate the value of this metaphor in that it allows us to both consider the “ambient environment” and “circular causality” (p. 393). This is crucial because understanding the boundary-work involved in writing and learning is the product of interactions across the ambient environment. That being said, focal participants in this study reported experiences from a humanist and individualist perspective, so the boundary-work that appears in the next two chapters is largely individual focused. Further research could do more to account for ambient agency in boundary-work.

Jenny Edbauer (2005) shares a similar perspective on how complex systems produce rhetorical exigency. She responds to the debate surrounding the “rhetorical situation” using ecological metaphors to expand our understanding of the rhetorical exigency beyond the local rhetorical situation to the entire ecosystem, which better accounts for the way rhetors are driven to act within a complex system. To understand complex systems we can turn to Byron Hawk (2007), who incorporates complexity theory to describe the relationship between order and chaos in biological systems and describes agency as dispersed from an individual rhetorical subject to the larger complex system. Sid Dobrin (2011), arguing that Hawk is one of the “few compositionists [who] have begun to take notice of systems theories and complexity theories” (p. 171), challenges the field of Composition for being overly focused on complex pedagogy and insufficiently theorizing writing. It is perhaps worthwhile to note that even after launching a rather scathing, scorched-earth, critique of the entire field, Dobrin ultimately returns to the status quo of the field by concluding his book with a section on pedagogical implications. While Dobrin misses much of the valuable work done in ANT and AT in Composition, perhaps due to the scorched earth approach he takes, I would agree that the metaphors we use to talk about writing have limited our understanding of the phenomenon considerably. Dobrin’s contribution is to extend complexity theory in Writing Studies. He argues, “in conjunction with complexity theory, I offer here a perception of writing as a complex ‘liquid’ system” (p. 179). Bringing fluid dynamics into our theories of writing is useful because it allows us to consider the entire saturated writing system rather than just the nodes and connections. However, Dobrin’s (along with that of many theorists working in post-humanist discourses) discussion remains highly abstract and detached from the specific material practices or real writers, with the fluid system

being a “perspective” only. I argue that our theory must remain quantifiably or qualitatively demonstrable in some real writing practice. Again, *if we cannot point to it happening in a writing setting in a very real, specific way, we might be talking about something that’s more in our minds than anywhere else*. This is the root of my concern above in this chapter for the need for validity and perhaps reliability.

### **From Network and Ecology to Boundary-Work**

As compelling as these theories of writing might be, whether network or ecosystem or complex or fluid, I am concerned that they may be more interested in their own metaphors than they are with the specific actions involved in writing, rhetorical action, and learning. The problem with this is that while metaphors are compelling, they become detached from reality of where writing is occurring and therefore do not help us much in terms of either developing research methods or conducting research or developing effective pedagogy for teaching students. For instance, I find it compelling to apply fluid dynamics metaphors to describe writing, but I also find it tremendously difficult to think about what this looks like exactly or how one inclined to research the phenomenon might go about doing so. How do we study writing as a liquid, and how do we help teach students to participate in liquid writing? Dylan Dryer (2016) expresses a similar concern, calling for “a more precise vocabulary: one that will enable us to ask more specific questions *and to deploy more focused research methods than we have so far*” (p. 62 emphasis added). I agree with this whole heartedly, and while I spend this section working through this theoretical perspective, the main purpose of it is to help us think about why boundary-work and micro-transfer are important elements to consider in studying, teaching, and promoting writing. As appears in the next two chapters, only a fairly small portion

of this theory appears in this particular study, and the rest remains as fruitful paths for future research.

A common thread between network, ecosystem, and complexity theories of writing is their interest in the forces beyond the individual writer that allow the writer to exist and the writing to be produced. While early on in this project I was particularly compelled by the notion of rhetorical force, which is still an important concern, the data analysis yielded more on boundary-work, which occurs across various spatio-temporal and discursive fields. I begin here with theories on the material environment, which is a crucial element in the boundary-work of writing. Jane Bennett (2009) provides a compelling argument in her book *Vibrant Matter: A Political Ecology of Things*, in which she argues for “vital materialism,” which disperses agency (and inventional forces) across the material environment. A great deal of her focus is on the force that material objects exert and the agency present in non-human objects. This focus on the force that non-humans exert is what Bennett call’s “thing power,” which refers to the power that exists in things, not as instruments of human action but as agents in their own right. Expanding agency to non-humans is an important move because it takes seriously forces that all elements of an environment exert on one another. Bennett’s theory is useful in part because it gives us a new way of thinking about the relationship between humans and the material environment, one that values the environment for its own vitality rather than solely for human interests.

This connects well to recent discussions in Writing Studies on the effects of the environment on writing (e.g. Jarratt et al, mentioned in the previous chapter). Bennett’s material vitalism takes this notion a bit further in terms of how we might see the agency of non-

human elements. Instead of thinking of the environment as providing constraints and affordances to writing, which is something humans do, vital materialism might see the non-human elements as co-writers. In other words, Bennett's theory encourages us to not think of a human writer interacting with non-human elements but rather a writing assemblage comprised of human and non-human matter that converges to produce writing. As we can see, we must do some grammatical gymnastics to discuss writing in this way. However, I would suggest that saying writing is the product of interactions between students, writing prompts, the classroom, the space in which writing occurs, the computer or laptop, etc., is perhaps more accurate or at least accounts better for how writing actually is produced. Vital materialism allows us to see the non-human elements of these assemblages not only as constraints but rather active participants in the writing. This appears most in the first section of the next chapter where I look at the spatio-temporal field and the boundary-work that occurs there.

Thomas Rickert (2013) follows a similar project to Bennett but focuses more explicitly on rhetoric. In his book, *Ambient Rhetoric*, Rickert deconstructs the binary between subject and object and locates rhetoric as an ambience that permeates space. Breaking down the position of subjectivity is useful because it allows us to focus on the interaction that produces rhetoric from a chōral space. Drawing on Plato, Kristeva, Derrida, and Ulmer, Rickert argues that chōra is a sort of "bridge" between the realm of the material and the realm of meaning. In other words, he paraphrases Derrida, "it gives rise to discourse and withdraws from that discourse" (p. 63). We might consider chōra in terms of invention as a space of potentiality that itself does not contain specific discourse but the potential for discourse. Rickert explains chōra as a related spatial, but distinct, term to topos. Rickert distinguishes chōral invention and invention through

topoi to be separate varieties of invention, or separate pathways, but I would suggest that perhaps they are not separate paths so much as different moments within the process of invention. To discuss this, however, it is essential to iron out a definition of topoi, which can be then connected to chōra.

Candice Rai (2016), in her book *Democracy's Lot: Rhetoric, Publics, and the Places of Invention*, discusses topoi in a way that both accounts for contemporary rhetorical theory *and is clearly articulated in relation to concrete rhetorical practice*. Rai traces the history of the term and connects topoi to “*places of invention*” (p. 40). Rai explains that “place” refers to both the discursive situation—“commonplace (topos) structures (keywords, discursive forms, languages, symbols, visual icons, etc.) that guide, organize, emerge from, and circulate within everyday life”—and the “material places (and the particularities of those places) that shape and are shaped by such rhetorical structures” (p. 40-1). In other words, places of invention draw on the material and discursive structures present in the vicinity of the rhetorical action. Further emphasizing the importance of the situation, Rai suggests “places of invention foregrounds this idea that rhetorical invention requires an examination of the productive and profoundly situational enmeshments of rhetoric and materiality, words and things...” (p. 41). In other words, the “place” and the rhetoric that emerges from the place are inextricably connected. These commonplaces are radically situated, which means that while they may contain elements of circulating ideologies, discourses, and materials, a place of invention exists in a given place and time, and “it is not enough to study them acontextually as one might study the periodic table and hope to unleash or understand their power” (ibid). In other words, if we understand topoi as commonplaces, which Rai suggest that we do, then we must see “common” not as

repeated but rather communal. Topoi are situated in a local community in a given moment and draw on the communal material and discursive resources that are present. This works particularly well with the post-human, networked, ecological perspective of writing and rhetoric that I am arguing for here.

Additionally, “places of invention” help us understand the relevance of *chōra*. Rickert describes both as a bridge between matter and meaning, or as a pre-discursive space that gives rise to invention. While *chōra* is described as alternative to *topos*, where *topos* is structured within discourse and *chōra* is situated in the preconscious moment of affect providing an alternative path to invention stemming from affect rather than discursive commonplaces, I suggest that we might see *topos* and *chōra* overlapping one another. To produce rhetoric, the rhetor must draw on meaning making structures that are part of a *topos*, while *chōra* might be seen as the affective space that precedes invention in *topoi* and provides the potential energy or force that drive the elements within the place of invention. This means that the *chōral* place vanishes as its energy is rendered into directed, meaningful, boundaries that exert force on the constituted members of the environment. In other words, *chōra* and *topoi* represent a gradual condensing and focusing of the affective, prediscursive energy of the situation into increasingly meaningful forces. In my study, this condensation appears as boundary-marking, or as boundary lines are drawn that give definition to the choral space.

We might see the next step of this condensation as the inhabitation of genre. Rhetorical genre studies (RGS) has redefined genre in many ways starting with Carolyn Miller’s (1984) seminal definition of genre as “typified rhetorical action” (p. 151). This shifted genre away from a classification system of limited value to a way to understanding the patterns of rhetorical

actions that occur. Over time, the definition of genre has changed. In fact, it might be considered a generic part of the RGS essay to mark boundaries around and redefine genre (Freadman, 2012). In my mind, two significant definitions of genre stand out above the rest as particularly useful. Anis Bawarshi's (2003) discussion of genre in his book *Genre and the Invention of the Writer: Reconsidering the Place of Invention in Composition* is the first of these. Bawarshi defines genres as "localized, textured sites of invention, the situated topoi in which communicants locate themselves conceptually *before* and rhetorically *as* they communicate" (p. 114). In other words, genres are constrained to a discrete space and moment in time. Further, by textured, I take this to mean they have features or specific constraints and affordances. For instance, when I'm part of writing an email, there are clear conventions that constrain and afford the way in which the rhetorical force might be constituted. However, I see some complication with this definition and Rai's definition of topoi. It seems like Bawarshi and Rai are talking about a similar thing, but the terminology creates some confusion. Dylan Dryer (2016) encourages us to be more precise in our use of terms in discussions of "uptake," and the same applies for genre and topoi. I suggest just as *chōra* and topoi might be seen as overlapping layers of the inventional process, genre is another layer. In other words, genre is situated within topoi and is a further concentration of the topoi. This means we might see genre as a further condensation of the rhetorical force that is concentrated through invention. Further, since genre is a specific, situated, rhetorical action, we might see genre as the guiding framework that ultimately constrains boundaries that define the space, the discourse, and the individual.

The movement from *chōra* to topoi to genre is part of boundary-work, but to better theorize boundary-work I return to Karen Barad, who I referenced in the last chapter. In her

book, *Meeting the Universe Halfway: Quantum physics and the entanglement of matter and meaning*, Barad (2007) brings together quantum physics, post-modern theory, and feminist studies (exemplifying the potential for *real* transdisciplinary work) to produce a theory that accounts for both idealism introduced by post-modern social theorists and realism of the “hard sciences.” In the first chapter, I discussed Barad’s notion of the apparatus, briefly, to theorize the kinds of interactions that are involved in boundary-work, but here I will spend more time engaging with Barad’s valuable theory. Two major concepts from Barad’s book are important for this study. First, Barad engages with Neils Bohr’s “indeterminacy principle,” which stems from a thought experiment which was later conducted in the lab demonstrating that light exhibits the characteristics of either a particle or a wave depending upon the particular procedure conducted to observe it. Barad explains, “the indeterminable nature of measurement interactions is based on [Bohr’s] insight that *concepts are defined by the circumstances required for their measurement*” (p. 109). This is a complicated idea, but it suggests that the determined nature of things is not the product solely of interpretation, or languaging, or representation of things. Nor is it solely the essential composition of them. Instead, the determined nature of a thing is the product of “circumstances” in which it is observed. In other words, these circumstances include the matter of the observed phenomenon, the instrument of observation, and the discursive structures that render the observations meaningful. Barad elaborates further in a later chapter: “phenomena do not merely mark the epistemological inseparability of observer and observed, or the results of measurements; rather, *phenomena are the ontological inseparability/entanglement of intra-acting ‘agencies’*” (p 139). This is a really important distinction. Jean Baudrillard’s (1983)

precession suggests that the “real,” or our life in the real, has gradually become a simulacrum, or the “real” is the language. In other words, language is no longer representing or simulating some material real that exists behind it, but rather language *is the “real.”* Barad by bringing the material back into the conversation challenges this notion. She argues, “[l]anguage has been granted too much power. The linguistic turn, the semiotic turn, the interpretive turn, the cultural turn: it seems that at every turn lately every “thing”—even materiality—is turned into a matter of language or some other form of cultural representation” (p. 131). I would tend to agree. While the turns have been valuable, this much turning possibly means we’re only going in circles. Barad’s argument is not that we should reject the post-modern turnings, but rather that “language” and matter both interact to define the observed world. This is a complex idea that I want to spend a moment unpacking.

Barad describes a thought (and later real) experiment that Niels Bohr designed. Since Barad spends a number of pages discussing this experiment, I will only briefly summarize it here. The experiment investigates whether light is a particle or a wave. The experiment involves firing light or electrons at a photosensitive plate through a barrier with two slits in it. Waves go through the slits in the barrier and display a diffraction pattern on the plate, just as when we watch waves reflected around rocks on the shore. Particles, however, would show a cluster pattern on the screen. What happens when this experiment is conducted, however, with electrons is that we see an interference pattern as we would expect with a wave (rather than particles). Bohr extended this experiment suggesting that if we could determine which slit each individual electron went through, the interference pattern would clear up and we would see two clusters of strikes on the plate. This experiment was finally conducted in the 1990s, and it

turned out that having the capacity to determine which slit an electron passed through does, in fact, clear up the interference pattern (p. 305). In other words, Bohr's thought experiment, which was later confirmed in the lab, suggests that whether light behaves as a wave or an electron depends upon whether we choose to observe which slit each photon passes through or not. This *does not mean* that light is both a particle and a wave simultaneously depending on how you look. Rather, the nature of light is determined at the moment of looking by the system of observation of which the light itself is a part. In other words, light can potentially be both, but in any given moment it has a determined nature as either a particle or a wave—that determination depends on how you observe the phenomenon. In relation to boundary-work, this means that the boundary that gives definition to light is not something that exists prior to our observation of it, but rather is marked through the process of observation and through our interaction with the phenomenon (light). I'll get to what this has to do with writing and learning in a moment.

The ontic and epistemic nature of things is constituted both by the material itself (the photons) and the cultural (the specific devices by which the material is observed) through what Barad calls "intra-action." "Intra-action" is better understood as "entanglement," which is the interaction between elements of the apparatus with indeterminate boundaries, or boundaries that are determined in the moment of interaction. In other words, when we look at the experiment above, we see that the nature of light and the nature of observation are entangled. This is critical to our discussion of writing because writing is a deterministic practice. The original goal of this study was to observe the interactions themselves to see how entangled

“intra-actions” might produce writing and might affect writing instruction. In the final chapter, I will discuss to a greater extent how a new study might be more effective at doing this.

Barad provides a simple example that she discusses at length of the coffee cup and the hand. If we look closely enough, the boundary between the coffee cup and the hand becomes determinate only when we look at it. This is counterintuitive because we generally consider our hand as “us” and the coffee cup as “not us.” However, due to the indeterminacy of matter, the boundary line is blurred until we start looking at it. This understanding is important for both the sciences and for my project with writing as well. Unlike old materialism, which saw the world as determinate and our perceptions as limited, Barad suggests that our perception is entangled with the material world. Likewise, unlike post-modernists who suggest that the only world is that of our perceptions, Barad describes the material as equally entangled in the determination of the nature of the world. This means that our understanding of the world is not entirely material or ideal but rather is the product of an entangled interaction within the circumstances that allow this understanding to develop.

This entanglement is important because it helps us understand the nature of the interactions that occur in the boundary-work involved in writing. Through the process of writing, we don’t see people navigating already defined environments with the material and discursive boundaries already existing. Instead, to write (and maybe to live in the world) one must constantly participate in the boundary-work that iteratively defines the rhetorical landscape. The nature of a phenomenon, according to the indeterminacy principle, does not exist prior to the observation but rather is determined through the interaction within the apparatus. Since writing is more complex than observation insofar as it additionally involves the

production of a material artifact, it is multiply entangled. It involves observations, which are entangled as Barad illustrated. It also involves thought, which is entangled in discourse, memory, physiology, and so on. Finally, it involves producing a material artifact, which is entangled in language, technologies, bodies, and so on. In all of these domains, boundary-work occurs defining what can be written, who does the writing, where the writing occurs, and who the audience for the writing might be.

Stephanie L. Kerschbaum (2015) discusses a similar notion in her book *Toward a New Rhetoric of Difference*. In her analysis of the rhetorical nature of difference, and especially the ways in which difference is marked, Kerschbaum argues, “[i]n contrast to understanding difference as something to be named or described, I define difference as a relation between two individuals that is predicated upon their separateness from one another” (p. 67). In other words, difference does not exist *out there*, but rather is about the way in which two individuals interact. Barad’s argument goes a step further suggesting that this boundary line that *is difference* is marked in the moment through the interactions across the entire apparatus. Just as difference is marked, writing (as a noun) is marked in a similar, relational, interactive, entangled way (writing as a verb). Suggesting writing is relational is nothing new, but Barad’s theory and how it might apply to writing brings the material back into the picture in a very real way while still allowing for the cultural constitution of knowledge and meaning. Instead of the world being impossibly hidden behind some simulacrum, the world itself comes into being through the interactions that occur within these apparatuses. Writing marks boundaries around the world because to write anything (or anything that matters, at least), the writing must say something. To say something means to make a claim about the determined nature of

something. Certainly, whatever presence is marked in writing is haunted by its absence or the other, but even deconstructionist games mark boundaries as they deconstruct others.

Writing, then is a boundary-marking practice that is part of the boundary-work that defines the world. These boundaries form in response to rhetorical energy—or the exigency of the rhetorical situation—channeled through the chōral space, through topoi, through genres, and finally becoming manifest in a material artifact (writing as a noun) in a more temporally and spatially stable form. Our interest in this in the field of Writing Studies, due to our pedagogical bent, is the human component of the boundary-work, and that is what this study ultimately helps us better understand. The virtue of this theory over other post-modern theories is it affords that human some agency over the apparatus. Barad calls her theory “agential-realism,” and like Bennett, she spreads agency across material and discursive, human and non-human components of the apparatus. However, Barad differs in the sense that agency is in interaction rather than in things themselves. What this means, in response to the post-modern crisis in which discourse has all agency and individuals are simply constituted positions therein, is that humans participate in agency. This helps us account for the agency that we hope we might help student writers attain.

Barad’s theory allows us to see the entangled nature of the boundary-work that occurs within the chōra, topos, and genre of a particular writing action. These interactions condense the chaotic rhetorical energy into an emitted rhetorical force carried by the writing artifact that is produced. What is more, this local writing action exists within a larger social, material, and temporal apparatus. The writing apparatus (including what we see as the student writer) is bound by the apparatus of the classroom, the institution, the culture, and the history of all of

the above. When we take a step back, this can become overwhelmingly complex in a hurry. The writing is marking boundaries of the page that will then be remarked as the audience reads them. The writerly ethos is an identity that is marked on the pages and reflects the “writer,” which is a bounded identity within the writing apparatus. We can zoom all the way out to the field of Writing Studies within the apparatus of the American University. I would argue that all of these apparatuses are iteratively functioning throughout the writing process, and it would be a valuable study to attempt to map this entire series of apparatuses for one moment in time, but that is not my project here.

I can now turn towards “micro-transfer” and the focus of this study. Within the ecosystem-in-becoming, people are identified by the boundary-marking that’s part of boundary-work. Social-constructionists have pointed out how social structures like discourse and ideology do much to determine who and what a person can be and do, but by incorporating Barad’s theory we can see that discourse is equally determined by the interaction of the apparatus. This co-determinacy means that agency exists in the interaction, and so all parts of the apparatus have some influence on the boundary lines. I suggest that since agency becomes dispersed and not isolated solely in either the individual or the discourse, some wiggle room might form to resist the repressive, ossified, past iterations of the world. Certainly, this wiggle room is slight, but we have seen room for perhaps what de Certeau (1984) would call tactical interventions. This is where instructional interventions might occur. I will discuss this at length in the last chapter. For now, when we speak of transfer, or “micro-transfer,” as I suggest we should, we are really talking about the movements made possible by the boundary-marking practices that occur across time, and the particular kinds of boundaries that can be marked. As

identification occurs within the apparatus, boundaries are established marking individuals, things, and so on. As my findings suggest, these boundaries are constituted with varied degree of rigidity and permeability. Formal institutions with heavily sedimented practices will constitute boundaries more rigidly and will provide less room for variance across the apparatus. Exclusive institutions will have less permeable boundaries and so will provide less room for incorporating new elements into their apparatuses. On the other side, less sedimented institutions will generally produce less rigid and more permeable boundaries, allowing room for greater variance within the apparatus. Writing is a set of boundary lines, and our judgement of a “writer’s effectiveness” depends largely on our reading of these boundary lines.

Since all boundary marking occurs iteratively and repeatedly as the world becomes, “transfer” ceases to refer to movement of relatively stable people moving across relatively stable boundaries that exist “out there;” it means that “transfer” is in the boundary-marking itself. Transfer occurs constantly through the iterative process as boundaries are marked and remarked from moment to moment. This is micro-transfer. In some cases, each (re)iteration changes very little and boundary lines are marked with little internal conflict in the apparatus—we would say “people fit.” In other cases, there is substantial dissonance in the apparatus and either major changes occur to the apparatus and the people therein, *or* the apparatus becomes dysfunctional. For instance, when the apparatus shifts significantly (e.g. when a university gains a new student), boundary-marking practices are less habituated for all regions of the apparatus. Universities have specific classes and activities that set out to discipline these new students to limit the resulting discord. From the person’s perspective, they might not feel as comfortable with the new setting. An example of this might be the all-to-common feeling of fraud that many

graduate students anecdotally report (ie. “I’m a fraud, and they’re gonna find out!”). When boundaries are marked ineffectively or the apparatus become dysfunctional, parts of the apparatus—often students—run the risk of being misrecognized or unrecognizable, in Bourdieu’s (1977) sense.

### **Bounding Boundary-Work: A Methodology for Studying Boundary-Work and Micro-Transfer**

In this study, I set out to investigate “micro-transfer” and boundary-work from this perspective hoping to contribute to our understanding of the phenomenon. This investigation has developed and focused increasingly on the boundary-work as I worked through the data analysis. To gather this data, I have followed three major procedures. These have been conducted in one section of English 131 and English 121 during Spring Quarter 2015 (I will describe the study context in more detail in the next section). I will describe these classes briefly below. This study received exemption from the IRB. The first procedure used was ethnographic observation of most sessions of each class. These fieldnotes focus on the ambience of the classroom and the interactions between focal students, their peers, the instructor, and other elements of the landscape. These fieldnotes tell an interesting tale of both collaboration and fragmentation that occurs in the classroom. This kind of observation fits within the tradition of ethnography, which seeks to generate a “thick description” of culture (Geertz, 1973). In the same sense, I have sought to generate a deep understanding of the day-to-day world in becoming in the FYC class. Ethnography involves a delicate balance of the “participant-observer” who navigates the space between insider and outsider status (M. Agar, 2008; M. H. Agar, 1983; Clifford, 1988). Since my goal is to be present in the classroom but limit the effect I have on the rhetorical activity of the class, I generally remained silent and situated

myself on the observer side of this balance. In interviews, where knowledge was mutually constructed, I occupied more of a participant role. Further, following Creswell (2007), I see significant value in the researcher becoming the instrument through which the phenomenon is seen. While clearly the perspective of the researcher is limited in this kind of research, the perspective still will reveal some information about the rhetorical ecosystem first-hand. Cintron (1997) provides an outstanding example of how effective ethnography can be. Cintron's study is particularly impressive because he is able to provide a very close look at concepts like "respect" as they play out rhetorically in the community. He achieves validity in his study largely through a compelling narrative and the scholarly authority of his narrator's ethos.

Another ethnographic component of this study is interviews. I conducted interviews of both instructors and focal students. Instructor interviews occurred prior to the academic term. Focal student participants were interviewed weekly to discuss their place in the class. These interviews initially followed a set of predetermined questions, but gradually became more freeform as the quarter progressed. These interviews initially sought to learn about how students were thinking about their writing and their interactions in the class. The first several interviews generally started with a set of protocols (Appendix I), which included questions about what the assignments asked students to do, what they expected to learn from them, their understanding of the instructor and their peers, and what they felt like they learned after assignments were completed. I found these protocols to be constrictive and prevented students from expressing themselves and acting like "informants." By allowing the students to speak freely and by allowing the questions to follow students' discussion, I was able to increase students' control over the interview conversations. So, in a sense, the interviews conformed

more precisely to the students. These interviews became the central component of the study largely because they illustrate in interesting ways the way in which students are able to articulate their position in the class. I suggest articulation is a mode of boundary-marking. By being able to speak about a thing, boundary-lines are necessarily drawn around it (it becomes a thing to speak about rather than part of everything). The way in which students articulated the class and their position therein, their relationships to the writing, and their sense of instructor and other interactions yielded fascinating insights that I will discuss in the next chapter.

The frequency of the interviews was also important. By interviewing students every week, I was able to talk with them both before each week's assignment was started and after the previous week's assignment was turned in. This allowed me to see how students moved from one assignment to another. Further, by participating in frequent interviews, students were still in the midst of taking up what had occurred in class the previous several sessions. They had not yet had time to generate totalizing narratives about the class as a whole. I would argue that this made these interviews particularly valid.

Next, I have collected all formal writing from focal students. This includes two drafts of a number of papers. The writing from each class varied widely. In English 121, the first sequence had students write a literacy narrative, a reading response, a dialogue between two course readings, a formal research paper. The second sequence was predominately group work and involved a group research plan, a genre made for the volunteer site, and finally a statement to the volunteer site. In English 131, the first sequence had students write an editorial, a counter argument, and a rebuttal. This sequence was conducted on Canvas, the learning management system, and had students debate each other. During this exercise, they were encouraged to

take up the argument of their opponent in a sort of *dissoi logoi* exercise that allowed them to better understand that argument. The second sequence had students write a formal research paper including a literature review, an annotated bibliography, and two drafts of the paper. I collected all of this writing to see evidence of interactions and rhetorical forces. What appeared more clearly in them was boundary-marking practices. I discuss this at length in the next two chapters. I analyze these texts first using close textual analysis. Sometimes this is lacking from transfer studies, but “[the] analysis of discourse is basic to the enterprise of composition studies” (Barton & Stygall, 2002, p. 1). While some textual analysis analyzes discourse, my focus in determining the configuration of the rhetorical ecosystem. This is not too distant a departure from discourse analysis, since discourse is a system of relations, but it does shift focus slightly from a post-modern to post-humanist perspective.

Finally, I administered entry and exit writing assignments to all students in the class. These assignments address antecedent genres and students’ general feeling about their position in the university. These assignments were not particularly useful, and in future studies, I will need to reconsider their content and their administration. As they were deployed, they did not contribute significantly to the focus of this study. They turned out to not be particularly interesting in part because of how they were administered. The first was administered with insufficient framing, so the comments were fairly general and did not appear particularly important to how students engaged with the class. The exit writing assignment was given on the last day of the term and many students did not complete them. I do not feel that the data contained in these assignments contribute much to our understanding of boundary-work or micro-transfer. As a result, they are not included in the next two chapters.

I recognize clearly that many of these procedures did affect the focal participants. However, this research is not experimental but observational. Further, since this study is explicitly not arguing for a particular approach to teaching that is to be tested by the study, if the results are skewed by the procedures, they will still be valuable. What is more, if we follow Barad, the results of any study are determined in part by the observation itself. In other words, the very procedures followed in this study will play a part in determining the outcome. That being said, the effect of the methods and procedures will have to be, and will be, accounted for as an integral part of the rhetorical ecosystem.

I have two other points to address briefly in conclusion. First, I did not set out with generated codes to analyze the data and even my understanding of the theory behind the study remained intentionally loose so that the codes and theory could develop as “organically” as possible from the data itself. In this way, the study is influenced by grounded theory (Glaser & Strauss, 2006). Barney Glaser and Anselm Strauss recommend tacking between data collection and pattern identification until the theory explaining the phenomenon does not change significantly. While pure grounded theory seems to me impossible insofar as it is impossible to even select a research site or research questions without the application of theory, allowing the codes to develop through the research process, particularly specific features to focus on, is possible and helps address some of the inevitable bias of research. Second, I drew on phenomenology in the data analysis phase. Phenomenology reflects both a philosophy and an approach to research (Sokolowski, 200; Wertz, 2011; and Van Maanen, 1988). As a research method, phenomenology focuses the researcher on the essence of the specific phenomena in question. Through the approach of “eidetic analysis” the researcher uses their imagination to

remove characteristics of the phenomenon. As each characteristic is removed the researcher looks again at the phenomenon. If it remains unchanged, then the characteristic was inessential to the phenomenon. Most of the breakthroughs that occurred during data analysis were the result of focusing on the phenomena and their essence, which allowed me to identify both different kinds of boundaries and different fields in which they formed. However, I suspect that a future student using “eidetic analysis” would be able to isolate individual boundaries and interactions even further.

### **The Classes**

In this final section before I turn to the data, I want to briefly describe the two classes that are the focus of this study. The university at which the study was conducted has a mandatory composition requirement in addition to a number of other departmentally mandated writing requirements. In other words, all students must take at least one and likely several writing classes over the course of their academic careers. This composition requirement can be satisfied by a number of different courses ranging from a stretched version that spans two quarters to a writing about literature to more traditional expository FYC classes. A vast majority of these classes are taught by graduate student teaching assistants who receive one week plus one quarter of training in an orientation and a quarter long seminar in composition pedagogy. TAs have considerable freedom in terms of how they want to organize their class. They may theme the class however they wish, and several themes are suggested in the course reader. To ensure that all students receive comparable instruction in the various courses, a set of outcomes rooted in Writing Studies theory and best-practices guide each class. In addition, all students must complete 6 short writing assignments of 2-4 pages and two major writing

assignments of 5-7 pages. A selection of these assignments are revised for a portfolio which is submitted for grading at the end of the quarter, along with a critical reflection about how the selected papers collectively demonstrate the learning outcomes. Seventy percent of the students' grade is derived from this portfolio. The remainder is participation, which instructors can assign in any way they wish except for directly tying it to attendance. The portfolio is targeted at the outcomes and is graded with the outcomes as a rubric. Beyond these formal constraints, TAs can select any theme they wish and can design the assignments in any way they wish. In reality, many TAs alter the assignment sequences significantly, assigning fewer assignments or turning a number of the smaller assignments into revisable components for the major assignments.

As is the case in many institutions where Composition programs is situated in an English department, many of the TAs have little or no expertise in the field of Writing Studies and are sometimes actively resistant to the field believing that teaching it is a chore that must be tolerated until they are offered lower division literature classes. In future studies, it would be valuable to look at the kind of boundary-work that occurs in classes in which the instructor is openly hostile to the field, but fortunately for this study, both of the TA instructors who participated are students in Writing Studies.

English 131 is a standard FYC class. While Autumn and Winter terms it is populated primarily by Freshmen and Sophomores, Spring term it is open to the entire university population, and therefore has more students further along in their studies. This is important and often has significant implications for the nature of the class. Older students who have more experience generally can contribute significantly to the discourse of the class. English 131 is also

the default version of FYC. This section was taught by Gorgias, who was in the first year of his program at the university after completing a MA in Composition Studies. Gorgias entered the teaching program with significant training in classical rhetoric, hence his selection of pseudonym makes sense. The course focused on rhetoric and had students learn argumentative writing. Their assignments began with a letter to the editor, then included a debate held on discussion forums of the course's website. The second writing sequence had students writing a research paper. This involved several smaller writing assignments including an annotated bibliography and a lit review. The students' final large assignment was a research paper that included the previously written lit review. This parts-to-whole approach was well received by a few of the focal participants.

In this section of English 131, readings were predominately rhetorical theory and more traditional rhetorical theory. This fit with the Gorgias' goal of teaching the class as a rhetoric class. Students also were asked to analyze the effectiveness of others' rhetoric. For instance, they had an assignment in which they were required to watch a debate between Bill Nye and Ken Ham about creationism vs evolution. In class reactions were generally very positive to these activities, and Gorgias gave students a good amount of room to speak. Overall, this course fell into a more traditional approach to teaching FYC by focusing on rhetoric and argumentation. At the same time, Gorgias took up more contemporary pedagogical approaches that gave students an increased amount of agency over the kind of work they did.

English 121 is similar to 131, but it incorporates a service learning component. In addition to the standard writing assignments, students were also required to work with an organization in the region. These community/institution relationships were managed by a

center for public service on the university campus. Students were given the opportunity to work as groups. These groups attended an event where they learned about the various organizations, and they were allowed to select which organization they wanted to work with. The organizations for this section of English 121 were all community education programs, predominately for immigrant and minority communities. However, some students worked with developmentally disabled students in public high schools, as well.

The instructor of English 121, Charlotte, took on a more Composition focused approach to FYC. While Gorgias focused predominately on argumentation and traditional rhetoric, Charlotte focused more specifically on the Outcomes throughout the quarter and organized her theme around literacy. One of the challenges that was limitedly addressed by the class was the boundary between the service activities and the course activities. Throughout the quarter, the service learning did not take up a major part of class time, except for a handful of days when students presented on the work that they were doing. Students in this class read a variety of readings on literacy and the social issues related to it.

Charlotte made use of a variety of discussion strategies. Besides large group discussions and small group discussions, Charlotte had students participate in fishbowl discussions. A fishbowl discussion is a common strategy used in writing classes in which students are divided into groups. Each group has a topic or reading that they are to discuss. Outside of class, students prepare for their group's topic. Then in class, each group has a turn sitting in a smaller inner circle, while the remainder of the class sits in a larger, outer circle. The smaller group then discusses for 10-20 minutes their topic while the rest of the class listens. At the end of that time, the outer group can ask questions and participate. This approach takes the instructor out

of the discussion, but it also doesn't place one student in a leadership role. This created interesting boundaries, particularly as many of the outer students were doing other work while the inner group was talking. Generally, Charlotte ran class from a more student centered perspective. She spent very little time lecturing and most of class was spent either with students actively participating in large discussion or working on smaller activities.

Charlotte's writing assignments were less focused on classical rhetoric than Gorgias' were. She started having students write a literacy narrative, an extended response to a reading, and a dialogue between two scholars students had read. For the first major paper, students wrote a more traditional research paper that involved library research. The second sequence, as I mentioned above, was a series of assignments related to work that students' groups were doing at their volunteer sites. These assignments addressed the course theme and gave student an opportunity to work through that theme in writing. This was, to some extent, successful and it was perhaps through the explicit connection between the theme, the assignments, and the volunteer sites that allowed any movement of ideas or experiences between the classroom site and the volunteer sites. I discuss this at length in Chapter 4.

These two courses differed substantially and illustrate two very different ways that FYC can be constructed. Both courses had students perform successfully and they appeared to develop useful resources for future writing and learning in the university. In the next two chapters, I will analyze the data from this study to illustrate the boundary-work that occurred in these classes.

### **Chapter 3. Spaces of Boundaries: Boundary-work in the Spatio-Temporal, Discursive, and Identity Fields**

In the previous chapter, I defined boundary-work drawing on research from various scholars in Writing Studies and beyond. Boundary-work, as I'm using it here, refers to the interactions that continuously occur to iteratively define the world-in-becoming. In other words, if we take up this perspective, we see the world in a constant state of being-defined as boundary lines that differentiate things, people, spaces, and ideas are marked. This perspective developed out of and guided my approach in this study. I initially had thought to trace rhetorical energy or forces across interactions, but what appeared in the data as I began to analyze it was the effects of boundaries that defined things. This turned out to be a particularly important focus for research because the way in which these boundaries were drawn defined how students encountered things, took them up, and responded to them. For instance, and this has been a major concern for Writing Studies, a student's ability to apply writing knowledge and skills learned in high school to college contexts, or learned in FYC to disciplinary contexts, depends largely on how students encounter the boundaries that define those individual pieces of knowledge and skills and the various boundaries that give definition to the new writing context.

I use the word "encounter" here to describe students' interactions with these boundaries, but encountering implies that these boundaries exist before students bump into them. The theory developed in the previous chapter suggests otherwise, as does the data below. Instead, the student is very much involved in the constitution of these boundaries. At the same time, I don't use the word "imagine" as in "students imagine these boundaries" because the students are not solely creating the boundaries, either, nor are they something

that exists solely in the mind of the student. Rather, the boundary lines are marked by interactions between students, the institution, the material context, the discourses, and the memories of all of these features. Understanding more about this “encounter” would be the topic for a future study.

That being said, the “encounter” with boundaries is central to our longstanding concern with transfer. As I discussed in the previous chapter, many studies have identified this concern for boundaries. Many have discussed the movement across and through boundaries that occurs; most explicitly Bawarshi and Reiff (2011) describe students possessing “boundary-crossing” and “boundary-guarding” dispositions. Any discussion of transfer, in the sense that it is the application of knowledge and skills from one context to another context, implies some sort of movement across boundaries. However, very few scholars have focused on boundaries themselves. While I set out to trace rhetorical energy or rhetorical force, through the process of conducting this research, the most interesting and relevant focus that developed was the boundaries. As a result, the analysis and findings of this study will present a stepping off point for the research of boundaries and boundary-work. I am using the term “boundary” in a fairly traditional sense here. Specifically, it is a line that separates a region into two distinct things. Most intuitively we might think about a fence that separates one piece of property from another, or a line on a map that separates Washington from Idaho. The latter exists in the material world as a sign that says “Welcome to Idaho,” meaning that it is constituted primarily in discourse but manifests in the physical world.

Boundaries in discourse are particularly interesting. For instance, the building in which I work is shared by Mathematics, English, and Modern Languages. To some extent, the

department offices are clustered, but there is some mixing. These departments share the same geographical location, and very little physical boundary exists between them. However, they are distinct disciplines based on what is included in each discipline. Linear regression belongs to Mathematics (and specifically Statistics), whereas Discourse Analysis is part of English. There is overlap that occurs with interdisciplinary work and with the advent of NLP and Machine Learning, there are scholars in English drawing on Statistics to write algorithms to analyze large corpora. Further, these boundaries that define disciplines are often hotly contested and politically fraught. Still, disciplinary boundaries that exist predominately in discourse do identify the knowledge, skills, identities, and other attributes that are included within a discipline making it distinct from the other disciplines.

Boundaries can also involve both spatio-temporal and discursive space. That which differentiates the United States from Mexico is the boundary between the two. That boundary is a line drawn on a map, built on the land, and most importantly inscribed on the discourse of the people (ie. we imagine a line and therefore it exists) (Anderson, 2016). National boundaries are fairly complex because they differentiate physical spaces, culture, and people, but the important thing to recognize about boundaries is their capacity to include and exclude things. So, a national boundary defines what part of that nation is and what part of that nation is not. Again, boundaries define things by defining what is included in the defined thing and what is not.

This is all straightforward, and we are generally comfortable with the notion of boundaries. It is probably for that reason that our studies on transfer have been interested in boundary-crossing and guarding, and movement across boundaries, but have generally focused

on the people rather than the nature of the boundaries. This is important because boundaries define how we understand and interact with the world, and clearly that is important for writing which is part of the boundary-work that defines the world and attempts to leave material artifacts that perhaps have some stability to traverse temporal boundaries. For instance, I recently received critical feedback on a paper stemming from this very research for including Karen Barad's work because she, as a quantum-physicist and Feminist Scholar, is too "far afield" for a paper in "Rhetoric and Composition" (or Writing Studies). In this case, the boundary-work of what counted in Writing Studies was contested and the boundary defining my own scholarly identity—my writerly ethos—presented insufficient authority to make such a move, probably because I had not included references to enough and the right scholars in the field to demonstrate that authority. This feedback proved to be useful in revision and also to illustrate the concern for boundaries that we ought to have in Writing Studies. We must pay attention to the boundaries, how they form, what they look like, and how we can interact with them because they define everything in our writing classes and in rhetorical situations more generally.

As I mentioned, my focus in this study gradually tightened on boundaries, and as I analyzed the data interesting patterns appeared that allowed for the development of a useful and flexible taxonomy of boundaries based on their location and nature. As with any taxonomy, there is substantial overlap, and its limitations are substantial, but I suggest that this is a useful starting point for better understanding the nature of boundaries that are marked through the boundary-work that occurs for students of FYC at a large research university. I would welcome

and encourage changes, expansions, and revisions to this taxonomy as more research is done on this topic.

Through the process of data analysis, I saw boundaries forming generally in three fields: the spatio-temporal field, the discursive field, and the field of identity. The spatio-temporal field is the field of space and time and includes the material environment and their existence in a particular point in time. Spatio-temporal boundaries are lines in space and time that define objects of an environment. In other words, these boundaries define concretely the where and when of an environment and the elements therein. For instance, spatio-temporal boundaries differentiate me from the chair I'm sitting in and from the stack of papers on my desk and the pictures on my walls and the walls themselves, and so on. Likewise, the shape and configuration of a classroom is a network of physical boundary lines of chairs, desks, human bodies, technologies, and other elements of the classroom. The second category of boundaries appear in the discursive field, which is the field of discourse. The boundaries that occur in the discursive field, as I'm discussing it here, include those that differentiate one discourse from another and those that define idea, concepts, and other cognitive objects. The boundary line that defines what "revision" is (and often more importantly, is not), for instance, is an example of this kind of discursive boundary. Additionally, disciplines and communities—even if they traverse various spatio-temporal boundaries insofar as they exist in different spaces—are defined largely by discursive boundaries. This means that what counts as part of English, for instance, is or is not determined by the discursive boundary that differentiates English from other disciplines in the Humanities. This boundary is highly contested and blurred, and that is part of what makes boundary-work and boundary-marking so important. In addition to the

political concern of discursive boundaries, they are also crucial to transfer. As I outlined in the previous chapter, numerous transfer studies have demonstrated that students' ability to connect knowledge and skills into and out of FYC depends, at least in part, upon this kind of disciplinary boundary and how the students encounter it. The final field in which boundaries appeared in my study data appeared around individuals themselves. These identity boundaries are unique because they cross the material and discursive field, and more importantly, because we are particularly interested in and affected by identity. The notion of identity is not new in Writing Studies and relates to the notion of ethos (P. L. Bizzell, 1978). More recently, "intersectionality" has emerged in numerous fields as a way to discuss identity (Crenshaw, 1991; Phoenix & Pattynama, 2006). Intersectionality refers to the way in which individuals' identities might be defined multiply within a number of different systems. Crenshaw (1989) introduced the term to in her work in anti-racist and feminist theory that pointed out the intersectional identity of women who were defined both as "women" and as "Black." While my research does not focus on intersectionality, the relationship between boundary-work and intersectionality is clear. Just as the discursive boundaries defining disciplines are blurred and contested and multiply constituted depending on when, where, and by who draws them, the boundaries that define individuals provide a space in which overlapping interests interact through the boundary-marking process. Understanding the boundary-work as interactional has potential to contributing to this conversation on intersectionality and would be an avenue for future research (Barad, 2007; Kerschbaum, 2015). The identity boundary is both physical insofar as it is inscribed on the human body, and discursive insofar as that individual has meaning and

agency in discourse. While other spatio-temporal boundaries do have discursive counterparts, human identities seem to operate differently.

I want to immediately qualify this taxonomy. Discursive boundaries usually are built into physical boundaries (like department buildings or border walls), and—following Foucault (2002)—physical boundaries lack meaning until they are rendered knowable into discourse. What's more, these boundaries interact with one another and are in a constant state of flux as the world iteratively comes into being. So while these categories don't do justice to the complexity of boundary work that I saw in this study, they do help us understand the nature of boundaries and build the foundation for future studies that can generate a more nuanced understanding of boundary-work. As I discuss above, my concern for boundary-work developed through the process of research. I set out initially to study interactions that occurred in the writing classroom and how these interactions contributed to learning. What appeared, however, was that the boundaries, or how things were defined in space, time, and discourse, seemed to have a tremendous effect on the interactions, and before I could effectively discuss the interactions, I needed to have a better understanding of these boundaries.

While the permeability and flexibility of boundaries was what appeared first in the data analysis—specifically in Jan's interaction with the boundary defining revision—I start with the fields because discussion of the nature of the boundary depends very much on where they form. For instance, physical boundaries turned out to be generally inflexible and impermeable despite Barad's claims otherwise regarding indeterminacy, and when they were flexible, they still differed from flexible discursive boundaries. I identified these three fields by looking at how various things were defined in focal participant interviews, in my field observations, and in

student writing. The definition of things is accomplished by a boundary, as I discuss in the previous chapter. Identifying boundaries in the data was a matter of looking at when objects appeared to have identity in my fieldnotes, when a student defined a thing in interviews, or in the nature of a piece of writing which both has an identity based on its genre characteristics and identifies the subjects it is addressing. For instance, several focal participants define revision saying “revision is...” This is a boundary-marking act that draws a discursive boundary that defines the skill. Likewise, in one focal participant’s writing, two discursive boundaries are marked simultaneously—specifically the entire piece conforms to the characteristics of the letter genre, and an embedded section conforms to the characteristics of a five-paragraph essay. Both boundaries match those typified by the genre. I discuss these at length in this chapter and the next.

As I read through my fieldnotes and listened to my interviews, I saw these defining boundaries cluster into patterns based on where they were located and how flexible or permeable they were. I then went through all of the data again coding instances in which boundary-work was most visible—things were being defined—classifying the instances based on the taxonomy I’m presenting here. In reality, I started by identifying permeable-flexible boundaries and impermeable-inflexible boundaries, but noticed many instances that did not fit these categories at all. I expanded the taxonomy to contain four categories—Inflexible-impermeable, flexible-impermeable, inflexible-permeable, and flexible-permeable. I discuss these categories at length in the next chapter.

This expansion helped, but there were still numerous inconsistencies and instances that simply didn’t fit. A breakthrough occurred after some time when I recognized that these

inconsistencies were appearing in relation to the fields. After I further expanded the taxonomy to account for the fields in which boundaries constituted, the data coding became more consistent, and most instances fit fairly well. Again, I see these categories as spectra rather than rigid boxes, so there may be varying degrees of flexibility and permeability within each category.

This chapter focuses on the fields in which boundaries are marked. I am starting with the spatio-temporal field. That being said, I have not yet introduced my focal participants. I am intentionally deferring that because their identities are continually changing—as they are iteratively redrawn—and because I spend a good deal of time in the final section of this chapter on these identity boundaries specifically. At the same time, it violates the convention to not introduce the participants here. So, briefly, I had 11 students initially sign up as focal participants. These students all selected pseudonyms that would be used to identify them in this study. Of those, only eight completed the requirements of the study, and of those, I have selected six to include in this dissertation. Michael was one of the three students to not complete the requirements of this study, but I include him above because he so clearly illustrates the limitations of considering any individual student as always being a boundary-crosser or a boundary-guarder. The six students who are included in this chapter and the next were evenly distributed between English 131 and English 121. Jan Novak, Catherine Bell, and Lisa were all in Gorgias' English 131. Jan and Catherine were first year students and Lisa was in her third year. Sally, Claire, and Banana were all in Charlotte's English 121 class and were all in their first year. I will focus more on who they were in the final section of this chapter. The remainder of this chapter will cover the three fields that appeared in the data analysis. In the

next chapter, I will describe the flexibility and permeability of the kinds of boundaries that are marked. While there is some overlap between the examples provided in each chapter, I will attempt to keep that to a minimum.

### **Journeys through Space and Time: Boundary-Work in the Spatio-Temporal Field**

Spatio-temporal boundaries are those that predominately or initially individuate the physical and temporal landscape. Spatio-temporal boundaries rarely exist individually or independently, but rather are part of a network of boundaries that define a region of spacetime (if I can borrow the phrase from Barad). For instance, a classroom is a network of physical boundaries that differentiate the chairs, the desks, the windows, the walls, students' bodies, various media, and so on. These physical boundaries are important, as Jarratt et al. (2009) point out describing the effects of the trailer on the pedagogical memory of a study participant, and being interested in ecological theories of rhetoric that attempt to account for the physical in rhetorical activity, I had high hopes for the data collected that addressed the spatio-temporal field. However, the physical, while important, did not pan out in the data in ways that were as productive as I had hoped. In interviews, most students had trouble discussing physical boundaries. When I asked about the classrooms and the physical spaces in which they wrote, most of them required additional prompting before they started talking about the physical features of the spaces rather than the people who occupied those spaces. In other words, while it was clear the configuration of the physical environment, as defined by the spatio-temporal boundaries, is important to students' writing and learning, the focal participants did not notice it unless it was explicitly brought to their attention. Even then, focal participants expressed some confusion as to why I might be asking them about the physical

environment, and Catherine, when I asked at the end of the quarter, “have you seen the environment of the classroom affect your writing directly or not at all?” simply replied, “No.” There is evidence, as I discuss below, that spatio-temporal boundaries are worth considering in regards to learning, but they are generally invisible or natural. This is not much of a surprise because as long as they are not directly causing discomfort or stress we rapidly normalize the spatio-temporal boundaries that constitute the environment so that we can pay attention to other things. What’s more interesting, though was that as I asked about the environment and continued to shift focal participants’ attention to the spatio-temporal boundaries of the environment by asking them to describe it, some of them began recognizing the effects of environmental conditions much more readily and could even extend their responses beyond the prompting to other experiences they’d had with spatio-temporal boundaries. For instance, Jan describes three different classrooms in our interview.

I started this line of inquiry, asking Jan, “Can you describe the classroom for me?”

Jan paused for several seconds before answering and seemed reluctant to reply in the way students do when they think you are asking a trick question or when they don’t know the answer. Then he said, “like the...uh...the...uh environment or just...” He then trailed off again, and I re-prompted explicitly suggesting he consider chairs or the tables or the room.

After he warmed up talking about physical spaces, he explained, “Okay, and so when the professor makes it personal and makes you feel welcome, then everyone feels like what they’re learning is worth learning because it’s applicable to their life and everyone else’s in the classroom. So I mean that’s the difference between like [pause] I’m just gonna use Econ because it’s just a very cold environment, right. And literally, the classroom’s really cold.” It’s

interesting to notice how Jan gradually works his way into discussing the physical environment by tracing backwards from the feeling that he has in the classroom to the material conditions of the room. In other words, the spatio-temporal boundaries produce a “feeling,” which then has to be rendered into something comprehensible that he can articulate. This perhaps helps explain why focal participants struggled so much to describe the environment and its spatio-temporal boundaries. I suspect that the interaction between spatio-temporal boundaries (the body and the boundaries that define the material environment) is largely affective, but more research would be required, and affect is not a focus of this study. When individuals become conscious of the interaction with spatio-temporal boundaries, as my prompting forced them to do, the interaction becomes rendered observable and they are able to articulate the interaction or at least the nature of the boundaries more clearly.

The classroom that Jan is describing is in Loew Hall, which he calls a “bad building.” Loew Hall is an older building, built in 1965 and the architecture is fitting for that era. As an older building, it does not have the same climate control systems as newer



Figure 1

buildings and in my experience, I’ve always felt that Loew Hall was either too warm or too cool depending on the season. While it might be hard to imagine temperature as a spatio-temporal boundary, it does give a definition to the physical environment that can be sensed. Additionally, the chairs in the classrooms in Loew Hall (see figure 1) are made of hard composite material

that has a tendency to feel cold in the wintertime. When we interact with the material of these desks, a spatio-temporal boundary is constituted that at least feels hard, uncomfortable, and often cold—at least that’s been my experience with these desks. Most of the classrooms in that building have an exposed brick wall, chalkboards, overhead projectors, and if they have media, it is in the form of a media cart that is chained to the wall. These material characteristics are defined as individual elements of the environment by spatio-temporal boundaries, and in the data, Jan’s interactions with the material environment constituted spatio-temporal boundaries that made him feel cold.

The classroom in Loew Hall stands in stark contrast to the one in which Jan had English 131, the class I was observing. He describes the room as having a nice setup and being in “a nice



Figure 2

building...a newer building.” The classroom he’s referring to is in Mary Gates Hall. Mary Gates Hall opened in 2000 and is a fairly modern building with integrated media systems in the classrooms. These classrooms are small, but modern. Catherine explains,

“I definitely feel like I know a lot of people, and I’ve seen a lot of those people out of class, and we’ll say hi to each other and stuff, which it might come also from like how small the classroom is.” Both Jan and Catherine interact with the material configuration of the classroom and in doing so participate in the constitution of spatio-temporal boundaries that they identify as “small” and “a nice building.” While their understanding of these boundaries exist in the field of

discourse, I would argue that their understanding stems from processing of physical senses that respond to the constituted spatio-temporal boundaries. In other words, their physical senses recognize spatio-temporal boundaries that make the classroom feel small, which in turn makes them feel like the environment is more friendly and intimate. Further, the chairs are much more comfortable to sit in because they are made of softer material and are more ergonomic. The desks are actually long tables and are clean. The room is oriented to have the students face the teacher, but since the chairs can roll and turn, it makes it easier for students to turn and talk to their neighbors or move around the classroom. All of these material characteristics constitute spatio-temporal boundaries that give form to the physical environment of the class. This matters to my project here because student learning depends significantly on their interactions with the physical space, and I discussed in the last chapter. In other words, the way spatio-temporal boundaries are marked does much to determine how students can take up a class that occurs in that environment, or at least how they can position themselves to begin to take up that learning.

After describing the classrooms in Loew Hall and Mary Gates Hall, Jan turns without further prompting to another building in which he had a class his first quarter at the university. This final example from Jan is interesting because he begins saying, "Also, there's one classroom [pause] it's interesting that you asked because building does matter." This particular turn is interesting because Jan required no further prompting and once his interactions with the spatio-temporal field and the boundaries therein became visible to him, it seems he was able to consider other spaces and even better understand his feelings about a space that had been troubling for him. He explains this experience at length:

The first quarter, I had an international studies course, and there was like a quiz section, it literally felt like a dungeon. And the professor was crazy. He was a Brit and he was INSANE, and he said you're either in two minutes...I close the door two minutes before class and so you're either in or you're out. And it was a dungeon because it was like, you had to go to the basement, right. And the windows had like grates on them and the desks were, they weren't even the same. They were just like stripped from other classrooms, and you sat there and you talked about...and the worst part is that we talked about medieval stuff, and so it was like death and it was just like this is totally fitting the situation.

Like any environment, many spatio-temporal boundaries exist, but the most important ones were the ones that stood out to Jan, specifically, the windows, the grates, the door, the desks, and the ground. As Jan interacts with the windows and the grates, a spatio-temporal boundary is constituted that makes Jan feel enclosed or trapped as one would in a dungeon. Further, the classroom is situated beneath the level of the ground, and the door is closed at the beginning of the class. All of these material conditions produce a network of spatio-temporal boundaries that make Jan feel like he is in a dungeon. As a result, Jan's experience in this class was not good. It's also interesting that the spatio-temporal boundaries connect with how Jan takes up the material—specifically a history class that focused on medieval Europe. A fitting subject for a dungeon-like classroom.

I spend this much time on Jan's discussion of classroom boundaries because he was willing to go into the greatest detail about the nature of the physical environment. However, all of the students to some degree discussed the environment. The most important spatio-

temporal boundaries were those defining the spaces in which students wrote their assignments. All of the students liked the small classrooms, both English 131 and 121 were in Mary Gates Hall. Unlike the classroom for English 131, the classroom for English 121 had movable desks. While figure 3 shows the standard classroom setup, after the first day of the quarter, the desks were moved into a horseshoe shape with a second row behind curve of the horseshoe, and they remained that way for the rest of the term. This classroom was smaller, and I noticed that it more often felt full likely due to the fact



Figure 3

that there were about the right number of seats for students rather more seats than students. While all of the students in 121 felt comfortable in this class room, Claire said the most about the physical space. It is also worth noting, and I will discuss this further in the next section, that Claire was the only student in the study that was able to talk about the physical environment without requiring further prompting. She had mixed feelings about the double horseshoe shape of the classroom. She was concerned that in that configuration people sitting on the outer horseshoe can only see the backs of the people of the inner horseshoe. However, her concern was not too great. “But I mean,” She said, “it is the way it is.”

Claire did appreciate the horseshoe shape in general because it “works really well for discussion.” Besides the boundary created by the configuration of the desks, Claire felt comfortable in the classroom. When I asked her to explain what made it comfortable she said,

“It’s partially the room size. Like it’s pretty much just the right size for the people. I like the windows there.” The classroom does have very large windows, particularly compared to some of the older buildings on campus. One peculiar feature of the classroom for 121 was two small breakout rooms that are attached to the classroom. A number of the classrooms in the building have these rooms, and they are small (roughly 100 square feet) rooms that can be accessed through the classroom. These rooms were not used in class but sometimes had students from other classes meeting there, but Claire said, “This seems like a really weird point, but the two rooms in the back, I don’t know. I like having them there even though I don’t go inside them. I know that there are people in there and it just feels like, I don’t know [pause] It just feels cozy having two rooms in the back.” Claire could not explain why these classrooms made the room feel cozy, and I am unable to accurately explain it, but the spatio-temporal boundaries that defined these smaller rooms did have an effect on Claire. I did notice that sometimes spatio-temporal boundaries had inexplicable effects on the focal participants or resulted in counter-intuitive effects on writing. For instance, Banana had some of her most productive writing experience while travelling to Michigan. One might expect in transit writing to be less effective. I discuss this at greater length in the next chapter.

The only student who did not have a good feeling about the classrooms in Mary Gates Hall was Banana. She initially felt uncomfortable with the small size of the classroom. She said, “I guess because it’s a small classroom. At first, I was scared because it was a small classroom, like, more people can see you. But then I realized that nobody cares, we just [pause] I don’t know. Voice out anything.” The same material environment constitutes different spatio-temporal boundaries for Banana than it does for other students. The fact that different

students can encounter the same material context in different ways suggests that the way they understand the context depends on the way spatio-temporal boundaries constitute, and this boundary-work is the product of interactions that occur in that context. I suspect that Banana felt less comfortable in a smaller class because it was more difficult for any individual to blend in. She did become comfortable with the environment by the fifth week, and her encounter with the classroom seemed to become more like that of other students. This suggests that spatio-temporal boundaries shift over time. I discuss this at greater length in the next chapter.

In my classroom observation, I saw that the flexibility of the rooms, the ease in which students could move around—either in their rolling chairs in English 131 or their entire tables in English 121—made lively conversation and group interaction very easy. However, students sought out very different physical environments and boundary configurations to do their writing, and even if they did not readily recognize the spatio-temporal field as relevant to their writing in my interviews, when I prompted them, they all expressed strong feelings about what kinds of environments worked best for their writing, and sometimes could discuss specific environments for specific types of work.

Claire did not distinguish between what sorts of spaces worked for different types of work, but she did have strong preferences for where she worked. While she was still “trying to figure out” where she worked best, at the time of the interview her “favorite place to study” was at Café Solstice (figure 4), on University Way. I have spent time at that café.



Figure 4

It's a good place to meet with friends, but it is usually pretty crowded and loud. They play music loudly. At the time of data collection, the music was generally rock or punk or hip-hop or occasionally techno. They played the music loud enough that people had to speak loudly to compete. Claire describes her experience working at Café Solstice:

Yeah, I just bust out work there. I don't know what it is about it because the music they have in there, and then I usually put headphones in, and I usually go there with a couple of my friends, and they're really hard workers so I kind of feel when I'm with them I have a responsibility.

Claire recognizes that the music is loud, but the physical space seems to be positive. It's worth noting that my interaction with the spatio-temporal field at Café Solstice differs significantly from Claire. One element that might account for the difference is that Claire usually works there with her friends who help keep her on task. The spatio-temporal boundaries that define the context for a student develop through these complex interactions between the people, the material, and the moment in the context. Understanding these as boundaries is useful because it allows us to see students' encounters with spaces as constrained or guided by their understanding of those spaces, which is defined by the spatio-temporal boundaries that are marked. This affects students learning because students illustrated clear preferences in regard to physical contexts for their writing. These preferences related to how they could interact with the spatio-temporal boundaries there. Besides Café Solstice, Claire avoids working in chairs. She explains that she lives in "one of the new west campus dorms" that were built in the last few years. These dorms are modern and are well designed to have a lot of different types of study spaces from desks in the rooms to study

rooms to lounge areas with modern style furniture. Claire describes them, “there are a lot of study spaces in there, but I don’t really like using them. I don’t know why, but I usually find myself on the floor under the window and I have very [pause] I don’t know, I don’t sit up straight. I don’t lay down. I just kind of schlump.” Claire navigates the spatio-temporal boundaries of the dormitory and has unconsciously found the best way for her to occupy that space, or at least the one in which she feels most comfortable. Her interaction with the space occurs in how she occupies the space, which in turn participates in how the spatio-temporal boundaries are defined. Claire’s case illustrates that while spatio-temporal boundaries that define students and spaces are not consciously visible, students have preferences for different types of spaces, and their interaction with those spaces is part of the boundary-work, which creates a space where they can or cannot effectively work and learn. While Claire’s observations of the environment and her preferences reveal the spatio-temporal boundaries that are constituted therein, the data in this study does less to explain why they have these preferences.

A particularly interesting interaction with spatio-temporal boundaries appears in Banana’s discussion of work she did for Charlotte’s class during her visit to Michigan. Banana explains that she prefers, “changing places [where I study] so that I’m not bored or feel totally stationary. That’s my style of studying so when I write, I also do that.” Movement through the spatio-temporal field is important to Banana, and she has a positive experience writing when the configuration of spatio-temporal boundaries changes. This will play a role in the next chapter, but I want to begin to discuss it here to show the importance of spatio-temporal boundaries to writing. Evidence of this interaction with spatio-temporal boundaries appears

clearly in Banana's discussion of her trip to Michigan, which she took towards the end of the term.

I asked, "In terms of doing the work on the bus and in Cleveland and in the plane, do you notice any major differences about how you write in, at home, you know, versus on the plane?"

"Yeah," she replied.

"And does it affect what you're doing?"

"Yeah, it's like because, well at home, my main goal is kind of like, 'Okay, I'm going to finish this. I'm going to do this. But then that mentality kind of disrupts everything. But while I was waiting for the train or while I was on the bus, it's just like, 'well, I'm gonna do this,' like in a very chill way. 'Like, I don't care,' just write away."

I continued the line of questioning, "You have time to kill? That sort of thing?"

"Yeah, that's better, um [pause] that's a better way for me to write, I guess."

"Is this something you could imagine doing at home or do you think it was having the time where you just had to wait, and..."

Banana cut me off and finished the sentence, "Yeah, having the extra free time. Might as well kill time doing this, and then like all these ideas came pouring out, instead of just me getting ready to write. Like nothing would have ever come out."

While Banana attributes her ability to write more easily to having "free time," I suspect that there is more going on here than just having free time. The unfamiliar nature of the spatio-temporal boundaries seems to be playing an important role. For instance, the temporal boundaries were influenced by many uncommon factors. Airlines dictate when the planes will

leave. Weather might delay a flight. Modes of transportation can only move so fast. Since the temporal boundary-work involves these elements of travel, Banana's schedule while travelling differed substantially from her personal study schedule at school. Additionally, travel required Banana to move through various spatial environments that forced her to write in terrain defined by unfamiliar spatio-temporal boundaries. Later she explains further, "I think because I was getting so prepared [to write at home], it made me, not complacent, but feel like a fallback. Like, 'oh, I have all these. I can do other things. Like, I'm at home. I can do other things first and then I can go back to writing.' But when I was on the road it was like, 'Oh, I should do this while I'm on the road because I will be busy then.'" The boundary-work here is interesting. At home, Banana has a habit of procrastination because she is familiar with the spatio-temporal boundaries that constrain what work she can do and when. When she is forced into situations in which the spatio-temporal boundary-work is unfamiliar, she is also able to break out of this habit of procrastination and interact with writing in a different way than she would at home. I want to make it clear that I am not recommending travel as a pedagogical strategy for improving students writing habits. Instead, this illustrates the effects that spatio-temporal boundary-work has on writing, but as we know, writing is not a one-size-fits-all affair and not all focal participants had similar positive experiences when the spatio-temporal boundaries were this flexible or unfamiliar.

Lisa was several years further through college than the other focal participants and had already developed a fairly clear sense of what helped and hindered her studies. She sought out different environments for different kinds of work, suggesting that she had clear preference for different configurations of spatio-temporal boundaries based on the kind of works he was



Figure 5

doing. She explains, “I like to be comfy when I write big papers. I always do math homework and science homework and any homework that needs space, I do it at the table usually at the library because my apartment’s too loud. Um [pause] I like either to come here [to write] and sit in those

big comfy chairs down there [figure 5] and write papers or I’ll sit in the quad [figure 6].” Lisa was very particular about the environment in which she worked and the more comfortable configurations of boundaries like the chairs in Odegaard Library or the grass in the Quad were



Figure 6

better for Lisa’s writing. The experience of working on the writing for English 131 in the Quad actually improved her feelings about writing. Lisa entered the class hating writing, but her position started to shift halfway through the quarter—I’ll discuss this shift in the next chapter—after finishing her first major paper. She ultimately describes writing as a positive experience: “Yeah, I had a lot of statistics and what-not backing up my statements. This one was written in the quad in the sunshine on a nice day, so I think I just kind of got a little too wrapped up in it.” For Lisa, the writing in the quad was “a pleasant atmosphere for an unpleasant activity.” However, her feeling about writing does begin to change. Beyond appreciating a comfortable environment for her writing, Lisa appreciated a comfortable environment more generally. In several interviews, she commented on the comfort of chairs. On the seventh week, she described the classroom chairs—the rolling-swiveling office chairs in figure 1—as comfortable in an aside comment. Lisa’s understanding of, feelings about, and interactions with the material

and temporal elements of her environment reflect her spatio-temporal boundary work. She finds that spatio-temporal boundaries that provide greater comfort for her (soft chairs, warm sun, and sitting in the grass) allow for her to become “wrapped up” in writing.

Most of the focal participants in this study preferred comfortable configurations for their writing. Either on a bed, a couch, or laying on the floor or outside in public, Jan differed because he preferred doing his homework in the library. This was in part due to the fact that he lived off campus but was intending to move into a fraternity house his second year. For him, it was easier to stay on campus and complete his homework rather than take the bus home. In this sense, the commute and the distance acts as a spatio-temporal boundary preventing him from leaving the campus during the day.

These discussions of preferred writing spaces and student interactions with classroom environments show that spatio-temporal boundaries are complex and multifaceted. First, the various boundaries in a physical space are interconnected giving it its definition. It’s hard to talk about the desk without talking about the chairs and the entire classroom. The only cases in which we might look at a single spatio-temporal boundary are those that completely contain a region as the classroom door that closes 2 minutes before the start of class, as Jan described in the dungeon classroom. Instead, I think it is more appropriate to consider the various spatio-temporal boundaries as a configuration of the environment, and so a number of features produce the interactive potential of the space. It is also important to keep in mind that all students experience physical environment in different ways. Across the board, we have rejected one-size-fits-none pedagogies, and I argue the same is true for classroom design. Finally, it’s worth noting that these spatio-temporal boundaries become increasingly significant

when they are rendered into discourse. I return to the dungeon classroom again because it is such a relevant example of how the physical takes on meaning through interaction with a person. The classroom is not literally a dungeon, but Jan's interactions with the spatio-temporal boundaries that constitute the classroom takes on meaning as he understands the space as a "dungeon," and that image becomes the way Jan understands that particular space in future interactions.

Before I move away from my focus on spatio-temporal boundaries, there were several other phenomena that I want to mention. The kinds of spatio-temporal boundaries I've discussed so far might easily be dismissed as mundane or banal, especially since they become relevant when they are taken up and given discursive meaning as students come to understand them. However, it is clear that the environment has a significant effect on student writing, and it is useful to consider the environment as a collection of spatio-temporal boundaries that are iteratively marked and re-marked through time as people interact with them. Understanding the environment as a network of boundaries is useful because it allows us to consider the various "lines" drawn across space and time that differentiate objects (the comfy chairs or dungeon-like grates on the windows). Spatio-temporal boundaries are not only relevant to writing insofar as they have an impact on the writer, but writing itself is the practice of spatio-temporal boundary marking. Writing literally creates concrete boundaries on the page (either ink or graphite on paper or pixels on a screen). Four of the focal participants in this study found the process of writing—the literal drawing of lines on paper, as valuable to their understanding of ideas, coming to terms with challenging concepts, and more generally existing in the world. Claire describes the phenomenon best when she discusses her practice of writing out ideas,

“My mom...she makes notes of everything, and I get a notebook for every birthday, and like that’s my thing. So I just...for me it kind of fortifies it. When I write it on the paper, I’m like, I’ll never forget this. I just put it down. It’s like one less thing for me to think about.”

I asked her a follow up to better understand the way she uses this writing: “Do you go back and look at them or is it mainly the act of writing them that’s important?”

She replied, “Kind of the act of writing it. Yeah. Because I worry about it when it’s in my head, but once I write it down, I’m like, it kind of makes it official so I don’t have to worry about it anymore.”

Claire doesn’t write down her ideas in this notebook to go back and look at them later. Rather, the act of writing in this notebook, of marking lines across the page is significant because it makes her ideas real and makes them easier to come to terms with them. As we discussed this notebook writing further, Claire explained that this kind of writing is useful for her when she has to deal with difficult ideas that she’s thinking through or working out. The notebook itself is defined by a spatio-temporal boundary insofar as it is an individuated object in the environment. Further, by writing in it, Claire is creating spatio-temporal boundaries on the page with ink. These boundaries represent and manifest her ideas that she is trying to work through.

Lisa had a similar practice of writing by hand. She would write out extensive outlines for her research papers by hand. For her second major project, she showed me the notes (Appendix II). She wrote out many pages of notes written in cursive on graphing paper. She included some notes in the margins and arrows that move ideas around. It’s worth noting that the first two pages have more of these markings than the rest. She explains writing the paper,

“It wasn’t actually the paper writing that took the longest. It was finding all my sources. Analyzing all my sources. Getting it together and organized. That probably took me about 3 days. I wrote about 20 handwritten pages just on my sources. Pretty much prewriting my literature review so...”

I asked her if this is her normal practice when writing research papers. She replied, “Yeah, I like to [pause] I’m not one to copy and paste things into word papers because I like to have it tangibly in front of me. Made me feel productive, too.” Being someone who also likes to write by hand when I’m in early phases of my thought, I asked if she had a favorite pen, which she does: “Fine point. I really like the new Sharpie pens they came out with.”

While Claire predominately wrote by hand for notetaking and for writing through challenging ideas in her personal life, Lisa used handwriting to work through and prepare her ideas before she started her formal writing. Once again, this writing is boundary-work because it involves creating meaningful boundary lines on paper with a pen. The precise and “permanent” lines afforded by the fine-point Sharpie help Lisa organize her ideas. I suspect it is significant that the particular type of pen is significant because it allows her to mark a particular type of boundary on the paper, and the concern for precision is likely related to her experience as a STEM student. Banana and Sally were less particular about handwriting, but both used writing, the act of marking physical boundaries to define aspects of their world. While Claire and Lisa used physical writing to manifest their thoughts and bring them into the world or “make them official,” Banana and Sally used writing to work through their own identities and sense of self. Since I am writing about identity boundaries later in this chapter, I will discuss this writing at that point.

Perhaps the most obvious spatio-temporal boundary that appeared in the data was the one between the classroom and the service sites in English 121. I discuss this at length in the next chapter. Further, a great area for further research that this study did not capture is the spatio-temporal boundary work that students were involved with in their life outside of class. It is almost certain that their extra-curricular activities and the boundary-marking that goes on there has a significant impact on how students learn in a writing class. This did not appear in the data for this study but would be highly worthwhile in future studies following this approach that improve upon the loose taxonomy I am introducing here.

Spatio-temporal boundaries are critical to understanding how students interact with a writing class and the tasks that it demands of students. Clearly the material configuration of the classroom is important, but students struggled to recognize it unless I explicitly prompted them to do so. Further, the students in this study all had different preferences for physical spaces to do their writing work. For some a dynamic environment was actually beneficial, perhaps because it forced them to focus harder on the work at hand. For others, a quiet, stable environment was better. The key points are that when we look to study boundary-marking we cannot neglect the spatio-temporal boundaries, and when we design classes, we make sure that we do what we can to create environments that account for all students' preferences and needs, but also recognize that unless the environment is noticeably bad, like Jan's dungeon classroom, or the trailer that bothered one of Jarratt et al.'s students (2009), students will likely not comment on the environment very much. The spatio-temporal environment naturalized rapidly, it seems, and so unless it is creating some sort of tension or friction for students, they likely will be more focused on the discursive features of the environment rather than the

material ones. This means it might be worthwhile incorporating discussions of spatio-temporal boundary-marking in our writing classes, as long as they are discussed in a non-prescriptive way, because clearly the physical does affect the writing in complex ways.

### **Discursive Boundaries**

Spatio-temporal boundaries are important, but they gain meaning when they are rendered as knowable in discourse (Foucault, 2002). When I discuss discourse, and discursive, I am using it in the way Foucault does rather than the way many linguists define discourse, although there certainly is overlap. In transfer research, we've spent the vast majority of our energy thinking about what I'm calling discursive boundaries. These are the boundaries that differentiate things in our minds and in discourse. For instance, the disciplinary boundary between English and Science at the UW is not a physical one as we share the same building and have intermingled offices, but rather a discursive one. The boundary between these two disciplines exists in our discourse and is meaningful to us. While this is not material, it does have profound effects on our actions and our ability to do interdisciplinary work. The entire notion of moving knowledge and skills from high school to college or from FYC to the disciplines is related to discursive boundaries insofar as high school and college are separated by both spatio-temporal and discursive boundaries—physically they occupy different locations and discursively we understand them as different discourses. Discursive boundaries also define our idea of writing and our idea of revision—or what counts as writing and revision. These boundaries are tremendously important because they define how people understand social structures, their knowledge sets, and the various skills that they have or are learning. For instance, the boundary defining revision includes and excludes certain skills, strategies, and knowledge sets depending

on how the boundary is marked. If that boundary only includes strategies like reading writing aloud and skills like copy-editing for formal errors, then a writer will only do those things when asked to revise. Likewise, if student sees rhetorical awareness as a strategy that is part of the English discipline, they will be less likely to deploy that strategy in other discourses (Nowacek, 2011; Reiff & Bawarshi, 2011; Wardle, 2009).

The most obvious example of a discursive boundary appears in Jan's discussion of revision. Many writing scholars are highly interested in revision, particularly those interested in understanding and teaching elements of the writing process. Revision is a defined boundary line that includes a specific set of practices and moves. Studies illustrate clearly that where this boundary line is drawn differs for different types of writers (Sommers, 1980; Sommers & Saltz, 2004). Depending on where this boundary line is drawn, individuals take up and perform revision in different ways, with novice writers performing copy-editing solely and experienced writers making more substantive revisions through the process of re-writing according to the evidence of Sommers and Saltz's studies (*ibid*). In the Expository Writing Program, revision is one of the four programmatic outcomes. Jan recognized this, but still explains, "Like, why would you [do revision]? If you put in a lot of effort in the beginning to write something, like why would you have to revise it?" Instead, Jan articulates that revision is about fixing "mistakes," and predominately grammatical ones. This boundary that defines what revision is defines to some extent how Jan approaches the process. Of course, this boundary line is not completely static, and there is some fluctuation, but I will discuss that at length in the next chapter.

Another important discursive boundary that students encounter, perhaps the most important boundary they encounter in a writing class is that which defines writing, and this

boundary is far from universal. Lisa, for instance, sees writing as an unpleasant activity. When I asked how she feels about writing in the past (in IB English in High School), Lisa said, “I definitely hate it. Um, I’m just not efficient at it. I get really frustrated. I’m very nitpicky with words, and I’ll sit there for a long time just trying to think of the right word. I always have like 50 thesaurus tabs open on my computer. So yeah [pause] I really really hate writing.” The boundary that defines writing in Lisa’s case is a collection of right words and therefore demands having the right word in a quick and efficient progression. As a result, she put off taking FYC until her junior year at the UW, and during our interviews she explained that it had been two years since she had done writing when she started English 131. The delay in taking FYC is a spatio-temporal boundary because it situates her encounter with FYC in time. It would be worth further studying students who choose to do this compared with most students who complete FYC in their first year or two in college. However, the discursive boundary that exists that I’m focusing on in this section is the one that defines writing for Lisa, and it is one that Lisa sees as unpleasant. Sitting here writing this, I can certainly sympathize with Lisa’s pain. At the same time, it is interesting to note that as a Physics Major who had been part of various projects on campus and in the industry, Lisa certainly had to do a fair amount of writing, or at least what we in Writing Studies would include as writing. This illustrates the importance of discursive boundaries. The discursive boundary that defined writing for Lisa excluded the various genres that other definitions of writing might include. As a result, Lisa recognizes writing only as the activity done in English and other Humanities classes, and is an activity she hates.

While Lisa and Jan both saw writing as a necessary, but unpleasant experience, Banana, Sally, and Catherine all reported that they enjoyed writing and the boundary that defined it was one that they encountered happily. In high school, Banana wrote for a school newsletter and enjoyed writing stories. Her understanding of boundaries was more nuanced than Lisa or Jan's insofar as she differentiated between "story writing" and "academic writing." The nuance comes from additional boundaries that are drawn within the larger, bounded field of writing. She explains "Stories are sometimes hard because they have no guidelines...But I like that kind of writing because it's more free, I guess. I can just write about anything. My imagination is not constricted, and I don't have to think too much into stuffs." For Banana, writing included this practice of being free and letting her imagination wander. However, writing also included "academic writing." She explained that academic writing had more to do with what she called argumentative and factual writing. In contrast with story writing, she said, "whilst argumentative and factual writings, you know, you have to be always [pause] you have to be goal oriented, I guess. Like, you have to follow that path. Like this is the purpose of your writing so follow that track. Don't get sidetracked, but with freewriting, being sidetracked can sometimes be more helpful." For Banana, writing could be both freeing and constraining, and this internal discursive boundary separating creative and academic writing explains much about some of the struggles that she had in the class. With creative writing in high school, Banana enjoyed writing and was able to write freely. She understood the writing to be free, and so was able to approach it as such. In English 121, she saw the writing as academic, and therefore it required some goal or clear path. This corresponds with one of Banana's most significant

complaints about the course. For Banana, the instructions were sometimes vague. The first major paper was a good example of this. I asked her, “The first major paper, how did that go?”

“Bad.”

“Bad? Okay, why?”

“Because, I mean [pause] well because I don’t know what I was writing about. I mean, I know. Like I told you. I don’t know if I’m making sense or if I’m doing the right thing. And it was full of BS.”

I followed up and asked, “What did you end up writing about?”

“I wrote about what I wanted to write about, but I’m not sure if it is what Charlotte expects.”

The challenge that Banana faced with this assignment can be explained by the discursive boundary that exists between creative writing and academic writing. Within academic, Banana expects a clear path or goal to be apparent and the driving force behind the writing. However, Charlotte, like most progressive composition instructors, balanced between having a clear prompt that helps students understand their responsibilities but at the same time leaving the assignment sufficiently open-ended so that students could take agency over their own writing. For Banana and Charlotte the boundary defining writing in the context of this assignment differed, containing different approaches. As a result, Banana felt lost because the writing assignment did not fit cleanly in the boundaries of academic writing, in her mind. Discursive boundaries like the one defining writing is crucial because they determine how we encounter our tasks and the world more generally. Some guidance to help Banana recognize the relevance of the invention strategies from creative writing in this academic writing assignment might have

left her feeling less confused, or at least willing to embrace the freedom that Charlotte incorporated into the assignment.

Catherine was also confident about writing and was quick to participate in the boundary marking activity that defines the practice. While writing, as a practice, marks both physical and discursive boundaries insofar as it draws physical boundaries on a medium that then manifests in the discursive plane, what we understand writing to be is the result of discursive boundaries. Catherine points out the important role of institutions in stabilizing discursive boundaries. I'll talk about this at length in the next chapter, but clearly we can see a discursive boundary in Catherine's writing established by the relationship with style organizations. She, like most students, identified MLA style as a major component of writing. She explains that her first research paper was in a Medical Anthropology class. She'd "never done [research] before," but she said, "I learned pretty quick how to do MLA format and learn how to cite, which I actually really really liked." This is important because for Catherine, and many of our students, style guides are a major component of the boundary defining writing, particularly writing in a particular discipline. This makes sense because part of the purpose of the style guides like MLA or APA or Chicago is to "normalize" or conventionalize the writing practices of the discipline. In our own field, it is not uncommon for writers to consciously use APA style, particularly if they are using social science methods, to differentiate or establish a boundary between their own work and Literary Studies. These style rules illustrate the interactive nature of boundary work. Disciplinary organizations like the MLA or the APA release style guides that define what writing ought to look like, what it ought to include, and what counts as acceptable writing both in terms of content and form. These organizations exert tremendous force in the boundary-

marking interaction because teachers and reviewers alike often hold these guidelines as barriers to entry for novice writers or new members of the field. While I suspect the emphasis we put on style guides is counter-productive, it is interesting in this study the effects they have on the boundary-work that produces the discursive boundary that defines writing.

Claire had different feelings about writing. While she didn't like it, she saw the use of it and was not intimidated by it. I suspect that much of this has to do with her high school experience. Claire was a student in a small school in Scotland and due to what she described as a disorganized environment, she ended up doing much of her learning independently. As a result, she as frequently discusses things that her mother taught her (e.g. writing everything down in notebooks, and using writing as a strategy to work through thinking), rather than organized classes that she took in the past. This is interesting because the disorganized environment meant that Claire did not have the same boundaries set up about what writing is and where it belongs like all other students in my study did. Most students recognized writing within the discursive boundaries of English or perhaps English and History, and at best recognized later on that it might be relevant in other disciplines as well, if not in a more secondary fashion. In other words, writing for most of the focal participants resided as a central feature in English whereas if they recognized other disciplinary writing as "writing," they saw it as an additional feature alongside the main content of the discipline. Claire, on the other hand, didn't seem to identify writing within the discursive boundary of English, but rather within the boundaries of specific projects. This is likely because she did not have the same "pedagogical memory" (Jarratt et al., 2009) established through years of experience in English classes that developed habituated discursive boundaries identifying writing as part of English.

Probably as a result of not having the memory of discursive boundaries identifying writing as part of English, Claire had a very expansive view of writing. In the data, we can see that the discursive boundary that defines writing is very broad indeed. She explains that most of the writing she did prior to English 121 was something she called “discursive writing.” She marked a second boundary identifying this kind of writing as a practice that is within the field of history that focuses predominately on “reviewing books” and more generally reporting on information that she was given in classes. She defines discursive writing as distinct from creative writing, which she doesn’t like. Claire’s experience with writing prior to English 121 was in history at UW and in Chemistry in high school. She never mentioned writing from other classes, which was uncommon among focal participants in this study. Most focal participants were quick to identify writing from English classes as past writing. Claire did not. She mentioned she’d done short answers for tests in other classes, but her main discussion of writing is in History and Chemistry. The main experience that Claire mentioned in writing was a project she did in chemistry. She explained, “I had to design the experiment and then I had to write a huge report on it and then a conclusive short paper.” She did this with little guidance from her teachers, and reported to me that she was very proud of this project. In the last section, I mentioned that Claire wrote to work through issues or things she was thinking about. In this way, she drew spatio-temporal boundaries (letters on a page) that helped her define her thoughts. Likewise, the discursive boundary that defines writing for her identifies writing as a tool for thought and reporting. That said, she still did not really enjoy the writing in English.

Jan provides us with the clearest and most sharply defined example of discursive boundaries. He identifies clear distinctions between English, Political Science, and Business. He

identifies writing as existing in all of those disciplines, but he does clearly recognize a boundary between them. The ways in which this boundary marking affects his writing is particularly interesting, but I will discuss that at length in the next chapter. Jan had the tendency to mark sharp boundary lines between things. In one of his assignments that asked him to write a letter to the editor, he wrote about the Keystone XL pipeline, marking boundary lines that defined the environmentalists. This was in 2015, when President Obama was blocking further work on the pipeline. In this assignment he marks a clear boundary between himself and the environmentalists by describing the pipeline “sending environmentalists into a chaotic frenzy.” He continues and suggests that the pipeline is “a no brainer at this point in time.” This is boundary marking on a few levels. First, in content, he’s marking a discursive boundary between himself, or his writerly ethos, and the environmental movement that was challenging the pipeline. This is reinforced by the dehumanizing phrase “chaotic frenzy” and derogatory insult, “no brainer,” implying that environmentalists are so dumb they don’t even agree with something someone without a brain would agree with. These are discursive boundaries because they do not exist materially, but rather exist in the field of discourse. Environmentalists are marked in a separate discourse from the one Jan’s ethos is in. At the same time, Jan is also interacting with his memory of the boundary defining letter to the editor as a polemical genre. In fact, Jan’s writing on this assignment conforms extremely well to the conventions of letter to the editor, which suggests that Jan has a familiarity with the discursive boundaries defining this genre. At the same time, this genre conventionally marks stark boundaries between groups of people.

In this section, my goal has been to describe some discursive boundaries and identify this as an additional field in which boundary work occurs. In the previous section, we looked at spatio-temporal boundaries, in this section we looked at discursive ones. I am perhaps establishing an overly deterministic distinction here between the field of discourse and the field of matter. Historically, this is conventional, but I want to make it clear that this distinction is limited. I need to make this distinction because it is generally the case that when we approach new paradigms of rhetorical theory, there is an effort to abandon older ones. For instance, with the language turn we moved away from positivism and concerns for the physical—in part because if we are anti-positivist, we are highly suspicious of or reject the physical senses. Over the last 10 years in Composition, we've started to see a return to the field of matter and so our attention focuses on embodiment and material rhetoric, and we tend to ignore older theories of discourse. This is a mistake, and the data of my study clearly shows that both the discursive and the spatio-temporal boundaries are crucial to student interactions in the class. The distinction I am making here, therefore, is purely analytical and when we look closely at any boundary, we see that both interact. I keep returning to Jarrett et al.'s example of the student's reaction to the portable building. They attribute the student's negative response to the material conditions of the building in comparison to her expectations. However, the trailer hurts the student's uptake not alone, but in concert with her expectations. These expectations are the discursive boundaries that identify what college is supposed to look like. In other words, it is not only the spatio-temporal boundaries that matter but how those boundaries are rendered into discursive ones filtered through her memory—which is the point of the article. The point I'm making here is that spatio-temporal and discursive boundaries work hand in hand

because discursive boundaries give meaning to the material ones. One place where there is profound overlap is in the field of identity. These boundaries behave differently than spatio-temporal or discursive, and so are worth a section for themselves.

### **Identity Boundaries**

Since the social turn, identity has been a major concern for Writing Studies. Our concern for identity can be traced back even further to the earliest days of the field. At the foundation of the field, which I identify as the post-US-Civil-War moment when Freshman English was being invented, a debate raged between Harvard and Yale over the role of this new class. Scholars at Harvard saw writing instruction as a way to build the democratic foundation of the country, and those at Yale saw it as necessary for the select few (Berlin, 1987; Brereton, 1995; D. R. Russell, 2002). In both cases, identity is an implicit concern. At the former, writing instruction plays a role in creating literate identities necessary for a democratic population. At the latter, writing instruction plays a role in creating literate identities necessary for the political class. Regardless, the goal of writing instruction was to constitute identities necessary for the particular model of society. By the 1970s this notion of identity became further complicated as universities faced increasingly diverse student populations as a result of the GI Bill. In 1974, the National Council of Teachers of English introduced the first version of a non-binding statement arguing for “students’ right to their own language” which encouraged scholars to consider and support various literacies. Mina Shaughnessy (1979) was particularly influential with her groundbreaking work that located student error not in faulty or inferior literacy practices, but rather in alternative literacy practices rooted in diverse identities. While the explicit concern in these conversations was in textual features, we can see now that these concerns predominately

masked prejudice against diverse identities. In other words, Shaughnessy, and later Joseph Williams (1981), point out that the kinds of error that raise red flags are those that identify the writer as non-white and non-middle-class. The social turn of the 1980s finally gave us theory and language to articulate the importance of identity in writing. Patricia Bizzell (1992) imports Foucault's theory and describes the importance of ethos in academic discourse. She demonstrates that the writerly ethos, or the identity of the writer that appears in the writing, does as much to determine the success of a piece of writing as anything else. More recently, Paul Kei Matsuda (2015) provides an overview of the discussions of identity over the past 30 years demonstrating how social and individual notions of identity have interacted. He concludes his argument suggesting, "The study of identity also needs to pay greater attention to the process of identity construction in the context of interaction between writer and reader" (Matsuda, 2015, p. 154). My goal in this section is to identify the ways in which identity boundaries are constituted. These boundaries traverse the material and discursive fields insofar as they manifest on material bodies, in material texts, and as the ethos. Identity boundaries are particularly important because the kind of identity boundary that is established informs how a person can interact within the context.

Perhaps the starkest example of this appears when there is conflict. For instance, about halfway through the term, Gorgias, the English 131 instructor, told a student to stop "messing around with [his] computer." This occurred when students were broken into their reading groups for smaller discussions. Gorgias randomly selected reading partners at the beginning of the term and these groups served as baseline groups for in class discussions. In this case, the student Gorgias brought into order was off task. When I asked Jan about the event, he

explained, “It was valid because even in our reading groups he’s...he doesn’t participate very much, and I know that as a professor [pause] as a teacher who spends his time doing something, you expect participation.” In this case, Gorgias’ identity boundary was marked and taken up by the surrounding students as one of an authoritative professor. Both Jan and Michael who were in this student’s discussion group clearly recognized this boundary and described it to me in my interviews. This identity boundary marking event clearly exerted force on the student because I noted in my field notes that the student blushed and hunched over in his seat and took up a defensive posture. The physical elements of this student’s identity boundary changed as he took up this posture. For the next several days, the student did not attend class creating a spatio-temporal boundary between himself and the environment where he had experienced what appeared to be an embarrassing situation. This is an interesting example of an identity boundary because it illustrates the spatio-temporal and discursive aspects of that kind of boundary. In the spatio-temporal field, Gorgias was standing over the reading group (who were all sitting in their chairs). This position exerts force to some extent because of the spatial relationship between a standing and sitting person. At the same time, I would not suggest that Gorgias is particularly tall or large or menacing even when standing above a group of sitting students. Instead, the majority of the force that was exerted on this student was from the discursive aspect of the identity boundary. The discursive aspect of Gorgias’ identity in this particular context defined him as an instructor with institutionally sanctioned power—which he exerts by scolding the student. The student responds by changing the spatio-temporal boundary of his identity—his body posture—which creates a defensive sort of boundary between himself and the rest of the class—especially Gorgias who is scolding him.

This physical component of this student's identity boundary is further reinforced as the student does not attend his next several class sessions creating a real, material distance between himself and class.

This example is interesting because it illustrates the way a series of boundary markings interact across time, which is the focus on the next chapter. It is also interesting because it illustrates the way boundaries are used to negotiate space. These identity boundaries are worth a separate category even though they include a physical and a discursive boundary because what we consider a human is a unique combination of these two. Further, despite theories of object-oriented ontology (Bennett, 2009; T. J. Rickert, 2013), the human identity is particularly important to us. Even if we consider ourselves post-humanists, the human individual is still something that we recognize in our classrooms and communities, and that in itself establishes the identity boundary and whether that individual identity "exists" outside of this experience or interaction matters very little because it is beyond the scope of our experience and the interactions that occur in our classes.

What's most noteworthy about the identity boundaries of the focal students in this study is that they are all unique, and none of them remain totally constant throughout the quarter or even in any given moment. This makes sense since in previous chapters I argued that boundaries are constituted in real time through interactions between elements of the environment. In the next section, I am going to discuss the identity-boundary of each focal participant in hopes of illustrating the nature of identity boundaries. Of course, identities are interactional and by describing them here, I am involved in the boundary-work. Further, these identity-boundaries are flexible and permeable just as other boundaries, so the descriptions

here are somewhat fuzzy and temporally constrained to when the data was collected. I will discuss the flexibility and permeability at length in the next chapter.

**Focal participant: Jan Novak.** I am starting with Jan for no particular reason. It is interesting to note that he is the only focal participant who identifies as male and who completed all components of the study (the other two male participants never gave me their final portfolios, and I'm not discussing them here). He was a student in Gorgias' English 131 class. Part of my research protocol was to allow focal participants to select their own pseudonyms that I would use to identify them in my study. This practice is fairly standard in social science studies in the field of Writing Studies now because assigning a name to someone takes some agency over their identity. This is particularly relevant to identity boundaries since the name seems to do much in defining how the boundary is marked and what students might be predisposed towards and against. While I really value this practice of allowing students to select their own pseudonyms, most students were resistant to this and required multiple promptings to select one. Jan however was really quick to select one and didn't require multiple promptings. He selected the name Jan Nowak. Jan Nowak was the *nom de guerre* of Zdzislaw Antoni Jezioranski, who was part of the Polish resistance during WWII. Jan (the focal participant) was very much aware of the significance of this name. He explained that it was the name of a Polish freedom fighter. Jan is the child of Polish immigrants who moved to the United States during the Cold War, and identified very strongly with that heritage. He even set out to do his major research project for English 131 on "how did the Polish Solidarity movement affect the Soviet Economy; both directly and indirectly" (Prospectus). This topic turned out to be well

beyond the scope of the class, but it is significant because it attests to how strongly Jan identified with this.

Naming a thing is a significant part of boundary-work. For instance, how students understand writing depends much on what name they give it or what set of skills, knowledge, and practices are bound within the name. This is even truer with identity boundaries. Louis Althusser's (2014) notion of "interpellation" provides a useful way to understand this. Interpellation or hailing is a call to a subject, and in answer the call the subject takes part in their own subjugation. While I do not focus on subjugation in this study, it is crucial to understand the role in identifying, or establishing an identity boundary, that naming plays. When Jan gives himself this particular pseudonym, he is interpellating himself and by taking on this name he takes on a particular identity. The name, in this case is part of the discursive register of the identity boundary. This name defines Jan as a strong individual willing to stand up to various forces that attempt to constrain him. This fits with other instances of his identity boundary. Jan was quick to select his own pseudonym, which suggests that he feels comfortable identifying himself, and in classroom conversations and his general interactions, Jan appeared comfortable with a position of dominance. Further, he was pursuing a position in one of the university fraternities and was already actively engaged in the admissions process. This was one of the older social fraternities attached to money and power. When engaging with me, Jan had a tendency to speak in longish chunks, compared to some of the other students, and there is less interplay between our turns with Jan requiring less prompting from me to speak in our interviews. The only student to speak in longer chunks in general was Sally.

In terms of physical space, Jan regularly positioned himself in the second row of the classroom towards the middle. He sat practically in the same seat every day throughout the quarter. While this study did not focus directly on the moment-to-moment body language of each focal participant—such a study would be a valuable next step—I did notice in my field notes that Jan regularly participated and displayed comfortable body language (i.e. he didn't try to hide himself or sit with his arms crossed). This position afforded Jan a reasonable amount of agency, which he generally appeared comfortable with. By not sitting in the front row, he demonstrated that he was *not* a student that would only try to connect with the teacher and have their back to the rest of the class. Instead, he sat in a position where he could be identified and recognized by the teacher, but also be seen and “face” the rest of the class easily enough.

Overall, Jan generally sought to establish an identity that was recognized as strong. He regularly discussed the need for “proof” and being in English to “learn how to form really really strong, convincing rhetoric.” He identified himself as “an objective kind of guy [interested in] math or science or that kind of thing because there’s a right answer.” When the first assignment sequence asked him to construct a “strong” argument and had him write in the letter to the editor genre, Jan took up what he describes in several of our interviews as an “arrogant” ethos. This suggests that he was attempting to create an identity boundary that would be recognized as authoritative and due to his experience, memory, understanding of the genre, and position in the class. Jan learned that this arrogant tone wouldn't work when he received significant critiques from his peer reviewers. He explained, “So, I wrote the first one with an arrogance, and it felt really forced, and like honestly, from my perspective, I was just playing around with voice and stuff.” In this Jan learned that an “arrogant” identity is not

necessarily the same as a strong one or an effective one. While he retained this desire for a “strong” identity throughout the class, his understanding of what “strong” meant changed. I will discuss this change in the next chapter.

**Focal participant: Banana.** Banana was the other student who selected a pseudonym without significant additional prompting. I really like that she chose Banana, and I’m enjoying writing “Banana said this” in what would otherwise be a serious genre. In our discussions, particularly during the early part of the quarter, Banana laughed regularly and freely and would regularly make jokes. The pseudonym is a strong example of how her identity boundary was constituted. She identified herself as someone who liked to play with words and joke around. This was true in the interactions I observed in class and in her writing. In fact, of all of the focal participants, Banana’s writing had the strongest connection to the kind of identity boundary she marked, and she regularly correlated her sense of self with the writing. For instance, prior to college, she was an active writer at her high school in Malaysia. She explained, “we’d have choices as to what we want to write in the exam, and I always choose the genre that has more animation, a more free-writing style, story-like style.” She continues to explain this choice, “I would always prefer to write stories instead of argumentative or factual writings because honestly those writings bore me.” Her choices in writing reflect a desire to have fun and create lively prose that would be entertaining rather than boring. In the same interview, she then explains, “I’m more animated, I guess. I like putting sarcasm [pause] funny stuff, those kinds of things.” Here Banana is creating an identity boundary because she describes herself as “animated.” This identity characteristic that gives form to her identity boundary connects with the kind of writing that she enjoys doing. In Writing Studies, we have often been interested in

the kind of identities that particular kinds of writing force upon the writer, and this is a very clear example of how that might work. Banana's identity is very much tied up in how she writes insofar as who she identifies herself as is defined by and defines what she writes.

As she progressed through the quarter, there is perhaps a sense that Banana ages as her concern for the fun kind of writing becomes less and her interest in factual writing becomes more. However, before I look at that, I want to complicate this earlier sense of her identity. She explains in this care-free "story" writing, "my imagination is not constricted, and I don't have to think too much into stuffs. Yeah, I can show my emotional side, I guess. Like if I want to be funny, I can write about humorous stuff. If I want to be emotional, I can write emotional stuff." Here, Banana is clearly showing that she is very thoughtful about her writing, and more importantly how her writing and her identity are connected. For Banana, writing is very much an ontological activity. She describes her writing in relationship to how she wants "to be." This is important because she recognizes that other people see her identity boundary in this as well. For instance, in high school, Banana wrote for a school newsletter. She enjoyed being funny, and she saw that it created a valuable position in her school. Specifically, she went to a boarding school in a country where English is a second language, and using English students would, as Banana explains, "think, oh you speak English. You're just pretending. You're just boasting. You're just being arrogant. You're just showing off." Yet, she used English and got positive feedback. She said, "I get feedback saying how funny I am." Later in the interview, she explains that her "approach" didn't make other students feel like she was being arrogant. She said, "by my approach they kind of accept me. They don't really judge me. They kind of see this is a fun [pause] you know, like English is fun." In this discussion, Banana shows that the kind of

identity she is able to mark through her writing is one that is accepted by the other students. It makes them laugh and recognize her identity boundary as a good, approachable one. So, it would not be fair to say that Banana's approach to writing allows her to mark a more "mature" boundary, even if it appears like that in the data I'm turning to next. She is clearly demonstrating sophisticated identity boundary marking in her high school writing, but it changes at the university to perhaps fit the more self-serious discourse of an R1 institution.

Banana has a major shift in identity through the quarter, and this shift is directly connected to her writing. Again, writing is a major component of the boundary work that Banana takes part in to define her identity boundary, but what that can look like changes. Later in the term, she explains that she goes through a shifting towards "adulthood." This started with her taste in reading. She explains, "I find case studies interesting. Yeah. Like it's surprising because just last year, I was burying my nose into Archie comics, and now I'm reading research papers."

The change in how Banana defines herself is an interactional one, and is the result of interactions that she experienced on Tumblr and with friends she made at the university. Again, Banana is well in tune with her identity, and so I want to cite a passage from our interview at length. This occurred at the end of the quarter.

"Can you say more about this shift to 'adulthood' that you described?" I asked.

Banana replied, "I don't know. It just happened. My characteristic is still kind of childish when I'm with my friends. I'm still immature. I don't know how to be formal. I don't know how to act as an adult, but the fact that I'm more aware of all this knowledge and all the things that are going on instead of just focusing on the simple stuff. I'm not forcing myself. Like I don't

mind trying to figure out like complex stuff about the world or reading political things even though I don't understand."

"Do you have an example, maybe?"

"Like the upcoming election thing. I don't even know what's going on. Do you know Tumblr?"

"I do know Tumblr. I don't use it, but I know what it is."

"Like Tumblr is full of youth, which are sometimes pretty extreme approaching social injustice. But in a way, it kind of like opened my eyes to all that stuff. Like I have a friend who describes herself as a social justice warrior. She's pretty much extreme. Like she's an extreme feminist. Not a communist, but she's against all this capitalist things, which is good. Like she gives me input and all this stuff, but sometimes she's just so pushy. But I just accept that. But at the same time, I still read all those things that those warriors tell me not to read. Like I kind of have both sides of things. I don't like having one side of things. I like reading things that people say are wrong and people say are right and make sense of all of it."

There's a lot going on in this passage, and much of it is identity work. She still sees parts of her earlier self in her present identity. It is interesting to note that these parts are what she identifies as childish. She also recognizes new characteristics of her identity, including the ability to work with critical materials that she was encountering due to Tumblr and her friends. She finds herself in the middle of the various forces that try to define her identity in a particular way and she works to try to "make sense of it all." This is interesting because it shows how interactions are exerting force on the identity boundary that defines Banana. Further, in my interviews, I saw a marked change over her identity. As the quarter progressed, Banana was

less inclined to make jokes or be silly, and in her responses to my questions, I saw her take more time to reflect on her response. At the same time, her writing remained closely tied to her identity boundary. Early in the term she found the kind of writing that she did in English 121 to be boring and often confusing. I suspect this is due to a difficulty in finding a position she could take up in the class in response to the writing assignments. Gradually, as she adopted a position that could deal with complexity, she enjoyed the writing assignments and did a better job with them. I suggest that this position is directly related to the identity boundary that she saw herself taking up. It is interesting to note that the physical field of Banana's boundary is less important than Jan's. She was less particular about where she sat in the class and didn't have much to say when I asked her about the physical spaces in the class or where she did her writing. It is worth noting that she was most productive in her writing when she was moving (either travelling to Michigan or working during breaks in a basketball game). Discussion of Banana's identity boundary is best concluded with her words: "I now know that I can be complex, but not complicated towards myself." Banana learns how to create a stable identity boundary that can interact with the complex world that she is forced to encounter in school.

**Focal participant: Catherine Bell.** Catherine Bell was another student in Gorgias' English 131 class. She recognized her identity boundary in relationship to school was the product of privilege. She explained, "I personally came from a very good school system. My parents made sure I was in a really good one, which I'm very appreciative, but I've never really had a bad school experience. I really had good teachers the whole way." At a university like the University of Washington, Catherine represents a lot of our students. She comes from an upper-middle-class family, went to good schools, and for her, a college degree was, to some extent a given. As

a result, establishing an identity boundary in school was very easy for Catherine because the memories she had accumulated prepared her for it. Of all the students in this study, Catherine Bell has perhaps the least conflict in how her identity is constituted to give her a position in the class. While Jan clearly occupied a position of privilege and dominance, he struggled somewhat because he felt impelled by larger cultural forces to occupy a position of dominance, and as a result had some conflict, which I've discussed above. Catherine Bell, on the other hand, was able to occupy a position of power in class but did not have the same conflict over being identified as "arrogant." Catherine Bell was able to select a pseudonym, but only after I prompted her and insisted that she select one. Catherine Bell was a name that was important to her family and was related to her mother. This in combination with the good experience and the frequency she references her parents in interviews suggests that Catherine's identity boundary is largely connected to her family and her memories of them, and Catherine found that this boundary worked for her in class.

Catherine describes herself as both "very opinionated" and a "big talker." This appeared clearly in classroom interaction as Catherine was one of the more active participants in the class. Overall, English 131 had a handful of active participants, or students who participated in classroom discussion every day and over a series of turns. Catherine and Michael, both focal participants, were perhaps the most vocal of these. Being opinionated and an active participant are crucial components of Catherine's identity boundary. First, Catherine describes herself as both of those things, and so she bases the identity boundary on these characteristics. Second and more interesting is that being a "big talker" and being "very opinionated" are components of the identity. Being a big talker means occupying a very visible position in the classroom, and

what is being viewed in that position is the identity of the speaker, and that identity is defined by the identity boundary that gives shape to the person occupying that space and their relationship to the environment. Also, for Catherine, being a big talker “helps [her] learn,” which suggests that her ability to take up the course content depends on this the identity boundary that being a big talker helps her occupy. Being opinionated is a related characteristic of the identity boundary. Not only is Catherine drawing the boundary of her identity for me in the interview, but also being opinionated means occupying an identity that has an opinion—specifically, the identity boundary identifies a person as one who believes such and such a thing. It would be worth further researching the relationship between opinion and identity boundaries.

Overall, Catherine Bell’s reported identity boundary is relatively uncomplicated. This boundary defines her as an active participant in class and able to engage with the tasks at hand. Her ability to mark this particular boundary likely comes from the educated background that she comes from. This identity boundary results in very little conflicts for Catherine throughout the class, and she fits particularly well into the university system as a result of this identity. Further, she does very little to change or refine this identity, unlike Jan, who does undergo some minor changes. These identity boundaries are relatively fixed and stable, probably because both Catherine and Jan encounter very little conflict in the university over who they are or how their identity boundaries interact with the dominant discourse. I do not want to suggest that all identity boundaries are this stable and even Jan and Catherine’s identity boundaries are relational and iteratively constituted. It is likely the case that the boundaries seem stable because there is little need for change across each iteration.

**Focal participant: Lisa.** Lisa was another student in English 131. Of all of the focal participants, she was the most resistant to selecting a pseudonym. In fact, I ended up having to make suggestions before she selected one. That said, Lisa is one of the more interesting students in regards to how she developed throughout the quarter and what she learned as a writer. Lisa's identity boundary defined her as a STEM student, and more particularly a woman in STEM. She explains, "I'm a woman in STEM, so it's been something I've been faced with ever since [pause] I mean growing up I noticed that my parents kind of geared me towards certain toys like constructive toys like building blocks and whatnot." Most of the students identified themselves in relationship to their parents and their experience growing up. This is interesting because of how important these identity boundaries turn out to be. For Lisa, identifying herself as a woman in STEM is deeply rooted in her past experience as a child who both played with Barbie's (as she mentions elsewhere in our interviews), but also was encouraged to play with building and construction toys. I would not argue that these toys were the key to helping her get into STEM, but at the same time, Lisa's identity boundary that identifies her in that field is constituted through an interaction with her memories of using those toys. The issue of women in STEM is a profound one for Lisa and came up throughout the term in regards to how she felt about writing, how she worked on assignments, and what kind of person she thought she was. She ended up incorporating this element of herself into the work she did for English 131, and she focused her research project for the second half of English 131 on the problem of a lack of women in STEM fields and "what we can do to get more girls interested in STEM."

I find this identification particularly interesting because it illustrates clearly how the identity boundary traverses the material and discursive fields. First, identifying as a woman

engages in material and discursive boundary marking. Scholars have clearly demonstrated the socializing, moralizing function of gender and sex<sup>9</sup> (Butler, 2011; Poirot, 2014). Notions of gender are clearly objects in the discursive field that act as templates for discursive and spatio-temporal boundary work. For instance, the rhetoric of gender defines discursive boundaries identifying a gender binary (or spectrum in more progressive circles), which then are inscribed on bodies marking their spatio-temporal boundary. By identifying as a woman, Lisa engages with these discursive and material characteristics to mark a particular identity boundary that defines her. Further, STEM is a discursive boundary, as I discussed in previous sections, and Lisa adds the identifying characteristics, that which establishes the boundary, she further refines her identity boundary. Understanding Lisa's identification as a woman in STEM is crucial to understanding how she interacts throughout the term, and could perhaps be seen as the foundation for the more specific and unique elements of her identity boundary.

Beyond identifying as a woman in STEM, Lisa marks her identity in a number of other ways. Unlike the other students in this study who were predominately freshman, Lisa was a junior and well into her major, already participating in internships in her field. As a result, I noticed in interviews that Lisa was most in control of her identity boundary, or perhaps was most aware of who she was and what position she occupied in the university. This is an interesting phenomenon because it appears across the focal participants. Most of the focal participants are younger students who came to university directly from high school. These

---

<sup>9</sup> Gender and sex are crucial topics, and to say they have been the subject of much discussion and debate would be a profound understatement. In future studies using this boundary-work approach, gender, sex, and sexuality would be particularly important focal points for research. In fact, the ways in which the physical and discursive merge on issues of sex and gender is particularly relevant in understanding how physical and discursive boundaries interact.

students are generally less aware of their relationship to others and in their identity boundary-work, the focus is predominately on establishing themselves. With Jan, he works very hard to assert his authority without being sensitive—at least at first—to the interactions that his identity boundary has with the rest of the environment. The same is true for Catherine and Banana, but they do not have the same focus on establishing their authority. Lisa, on the other hand, displays that she is well aware of herself and her position in regards to others. A subtle example of this appears when she describes her position in the class. She first explained, “I’m not an active participant, but I listen and take notes and take in what everyone else is saying. It works out well for me and that’s the kind of person I am.” Lisa brings up the notion of being a participant without prompting. I asked her for her position in the class. While other focal participants identify as “opinionated” or having “strong arguments,” which are predominately internal characteristics that are expressed in discussions, Lisa identifies herself through how she interacts with other students. One might suspect that this is because Lisa appears to identify more as an introvert, however, Sally, a student in English 121, also identifies as an introvert, but is still focused on her own internal characteristics rather than the ways can participate or collaborate with others.

Lisa explains her participation further, “I’ll contribute to class if I feel like there’s something that needs to be contributed that someone maybe hasn’t touched on before, but I feel like I like to take in others’ opinions and think about it in my own mind before I voice anything.” This is interesting because Lisa identifies herself as a collaborator in this, with her contribution depending on what she says that has not been said. This is a subtle distinction but worth considering. Generally, students in this study looked to contribute things they thought

were interesting or smart, but were not sensitive necessarily to how they contributed to the larger operations of the class. The identity boundary of the student then becomes an individual attempting to express themselves. In Lisa's case, her identity boundary in class discussion is defined by how she can extend the conversation or fill in gaps in the conversation. Her identity boundary is not an individual attempting to express themselves, but rather is a member of a conversation. I suspect that the ability to mark this kind of boundary depends on having more experience in university and being comfortable interacting rather than simply expressing through their identity boundary. Additionally, Lisa seems more self-aware because she is an older student and knows what she wants to do and where she wants to be in the university. I will discuss how this identity formed in the next section at a greater length.

Physically, Lisa occupied a position in the back of the classroom in the center. She spoke in class discussion less than once a week (beyond the mandatory attendance question), but did actively take notes, and despite being perhaps a more introverted member of the class did interact with other students when the opportunity presented itself. For instance, during one of Gorgias' attendance questions ("What do you do on rainy days?"), Lisa identified herself as funny. Most students, according to my observations, said, "Play video games" or "Watch Netflix," Lisa said, "I judge people who use umbrellas." The second or third student after Lisa replied to the question, in a mock-sheepish tone, "I use umbrellas." I don't want to make too much of this exchange, but it is interesting to notice how Lisa took the opportunity to make a joke, particularly on an especially dreary day in Seattle. This statement marked a particular identity boundary that students, or at least the student who replied, recognized this identity as

one that was funny and making jokes, and at least one student actively engaged with the identity that Lisa presented in that statement.

In regards to writing, Lisa was very much against it. I discussed this above, but Lisa identified her hatred for writing as part of her identity and in the context of being a STEM student. In other words, her hatred for writing was part of her identity boundary-work and was the result of the way she drew that boundary in relationship to the discursive boundary that defined writing for her (something belonging to the field of English and relating to the analysis of literary texts).

**Focal participant: Claire.** Claire was another student in Charlotte's 121 class. She was in ROTC and wore her uniform to class several times during the quarter. ROTC played a major role in how Claire identified herself or marked her identity boundary. It is very interesting to note that in the studies that I have done, service members and ROTC students have all volunteered as focal participants. In the two studies I've done at UW, 100% of ROTC students have volunteered as focal participants. In general, I've had pretty good success recruiting, but it is still worth noting the willingness of these particular students to participate. This fits with the scholarly research in the field of Veteran's Studies. Part of the identity associated with military service is an engagement with the community and a desire to contribute (Pew Research Center, 2011). As a result, I suspect that ROTC students are more inclined to put themselves forward. This is certainly the case with Claire. She regularly sought leadership positions in the class. The following discussion we had was particularly illuminating:

I asked Claire what her position was in the class and in her group for her major project. She explained, “yeah, I mean, I kind of usually find myself, even if my group doesn’t need to be kept on track, I usually find myself trying to do that.”

“Ok,” I replied.

“Which is good because I went to this music academy when I was younger, and I was the band secretary, and when I wouldn’t be there, they wouldn’t get anything done.”

“Okay, got it.”

“So I was like 12, and they’d be like, ‘We didn’t get any rehearsal done because you weren’t here to tell us to do it.’ So [laughs], so I kind of like always assert myself, I guess. But I really like my group, and I feel like we might not get a lot done on paper, but our discussion is valuable.”

This discussion clearly represents the kind of role that Claire liked to take on in group settings. She marked her identity boundary as that of a leader who could organize people and tell them what to do. From Claire’s perspective, her peers responded positively to this. I want to make it clear that Claire was not positioning herself as the leader out of any dictatorial sense. She genuinely wanted to lead because she wanted to help people. She explains this as she discusses her selection of English 121 over English 131: “I chose this class over 131 because I like to do things I’m interested in, and so I figured if I was volunteering—I really like volunteering—so I thought that that would actually give me something to work towards.” She sees her role as one who can serve the community and help people, and through her actions, she marks her identity boundary as that. However, not everyone responded positively to this identity boundary. Sally was another focal participant, who I will turn to next. She was strongly

repelled by Claire's identity, calling her "bossy." This illustrates the interactive nature of boundary-work. While much of the evidence I collected shows boundaries from one perspective, the views of Claire's identity boundary from her own perspective and Sally's perspective show that the boundary is marked in slightly different ways depending on which perspective we're looking from. This matters profoundly to Writing Studies because how students interact with the class and take up materials and enter rhetorical situations depends on these kinds of boundary marking interactions. If a student were repelled by the identity of an instructor, as is the case for Michael, a focal participant who didn't complete the study, they occupy the space in the class and ultimately lose the opportunity to learn from it.

Claire regularly sat in the same area of the classroom, and she tried to sit in the middle. This space allowed her to see and interact with all of the students. As I mentioned above, the physical layout of this class was a U shape with a second row in the back. Everyone could see everyone pretty well except in bottom portion of the U. Claire's identity boundary marking was much like most of the focal participants insofar as she was not particularly aware of her position in relationship to other elements of the environment, which I am attributing generally to the age and relative inexperience of the students.

**Focal participant: Sally.** While most students in this study engaged rapidly with the class and were generally feeling positive about their FYC class at the beginning of the term, gradually becoming less so as the quarter progressed, Sally was the opposite. She started out very distant from the class, but then became fairly engaged by the end of the term. The notion of reflexivity does a pretty good job to explain Sally's identity boundary-marking practices. Reflexivity was particularly popular during the last quarter of the 20<sup>th</sup> century in Writing Studies. Janet Emig

(1971) in her groundbreaking work on twelfth grade writers illustrated the virtues of reflexive writing, or student sponsored writing. Later scholars picked up on the notion of student-sponsored writing to a great degree, but more importantly many scholars picked up the concept of reflexivity in performing ethnographic research (Chiseri-Strater, 1996; Kleinsasser, 2000). Reflexivity refers to the practice of turning one's attention on oneself. In writing, this looks like self-reflection. In research this looks like awareness of the position and effects of the researcher on the study. Sally's spent a good deal of our interviews doing reflexivity—or self-reflection. Sally was also resistant to selecting a pseudonym, but did eventually select one. Sally described herself as “80% introverted and 20% extroverted, but the introverted aspect stops me from engaging with the class through like a whole massive discussion.” This is a crucial part of Sally's identity and as a result of it she has a very difficult time engaging with the class or with the instructor. Her identity boundary is one that does not interact easily with the general environment in the class. Additionally, she makes a distinction between shyness and being an introvert. While Sally didn't clearly spell out what this distinction was, I suspect it had to do with the relationship between self and others. For instance, introversion seems to relate to Sally's tendency to turn inward rather than turn outward when in the classroom environment. Shyness, on the other hand, has to do with ability to talk. She explains, “I want to talk to the teacher, but at the same time I don't want to get things wrong.” In this comment, Sally is not discussing talking to the teacher outside of class, but rather in class discussion. This suggests that she sees classroom discussion as occurring between herself and the teacher. This is an important part of her identity boundary. Instead of marking a boundary that attempts to occupy a position in class in relation to the teacher and students, Sally attempts to occupy a

position solely in relation to the teacher and the rest of the class matters less. As a result, establishing an identity boundary in class that can really engage with class discussion is very difficult for Sally, and it isn't until well into the quarter that she even learns the names of her teacher. I do not believe Sally does learn the name of her peers at any point throughout the term because she always refers to fellow students as "that one girl" or "her."

This closed-ness, which I suggest is the result of the particular identity boundary that Sally marks around herself in class, manifests on how she sees the identity of other students. For instance, when discussing group members (Claire specifically), Sally said, "I think maybe if they could open their hearts a bit more and bridge over what they're feeling and try to connect my ideas or other people's ideas into their own overall plan for the research project, that they probably would be a bit better because they're kind of being a bit closed minded now." And later in the same interview she continues, "But bossy people, they try and shut their ears. So I'm not really sure. Like nowadays, like hot to peel their hands off their ears." Sally sees other students' identities as shut. This is very interesting because one of the "bossy people" is Claire, and yet Claire saw her own identity boundary as open and encouraging and supporting of other people's ideas. Not only are identity boundaries co-constituted and interactional, but they clearly affect how people can interact with one another. At the same time, I suspect that since Sally marks an identity boundary that does not provide ways for other to interact, she sees others identity as closed as well. A similar phenomenon, I think appears in our interviews. Most focal students responded to me in a conversational manner and required prompting and turn taking from me after they had answered the majority of my question. Sally did not use the same kinds of conversation practices. She had a tendency to speak in long monologues that

sometimes went off from the questions that I asked. This yielded very interesting insights about the class for me, but it also was strikingly different from the other students. This conversation mode is part of the identity boundary-work because she establishes a particular identity in the way she talks.

While Sally might be inward focused and not able to effectively engage with her peers in class, she does spend a lot of time considering her identity boundary. For instance, Sally describes her own identity formation in regard to her sisters' (she is considerably younger than her sisters). I'm going to cite her at length here because it illustrates how she defines herself very well:

I think a part of it was just my family upbringing. Both the passive and the assertive part [of my personality] because my sisters just in general are really assertive. My parents too. So they just really, oh goodness. There was just one instance when I was at the Tacoma Mall with my sisters and there were like these two middle schoolers, and she's [the sister] probably like 25 at the time, and they said some racist comments to her, and she just yelled back at them really loudly. And I was like, oh my goodness. I'm just....wow...I felt like I should be embarrassed, but I was really proud of her. So through these similar instances, I motivate myself to try to be better in that way, but I think the passive part of my mentality is the fact that I have three older sisters. They're all at least 7 years older than me, so they've always kind of like controlled me, and they've always had their own similar topics that I can't relate to like marriage or you know boyfriends when I was still like a first-grader and stuff. Yeah. And so, in

terms of this group project, I think a bit of my passiveness is just kind of like trying not to intimidate the higher authority. But I've also had that part of my sister's personality where I want to have my own opinions, publicly expressed and also have it considered and turn it into action. I'm not really satisfied with them hearing it and dismissing it even if that happens a lot of times.

First, Sally is clearly very conscious of her identity and what resources she uses to constitute it. She recognizes that she doesn't constitute an assertive identity to the other group members who are much more assertive than she is because this is her habit in response to assertive people. I'll discuss this kind of thing at length in the next chapter when I talk about micro-transfer and the development of boundaries. Also, Sally clearly wants to have an identity that resembles her sisters. She wants to create an identity that can assert itself in the context of class, but that identity is not recognized. As a result, Sally speaks in a fairly resentful manner. In this we can clearly see what happens when conflict occurs over how identity boundaries are established in a class.

This chunk also illustrates Sally's commitment to social justice. This is not so much something she does but something she wants to be. She wants to *be* the kind of person who fights for social justice. This is an identity boundary that defines her, and Sally wants to establish this identity because she wants to live up to her sister's image. She performs this identity in a number of ways. First, she identifies herself as someone who likes sociology. Of all the students, she does the most work for the service learning. Unlike the other students, Sally spends extra time, and finds a comfortable space creating her identity in south Seattle at the service site. Sally explains that she finds that environment relaxing and comfortable. She also

discusses spending extra time interacting with people in neighborhood restaurants and businesses. This work to occupy space in a lower income, predominately immigrant community is interesting because it is a place where she finds it easier to mark her identity boundary.

**Conclusion.** These three regions of boundaries are important. Spatio-temporal boundaries are physical and temporal boundary lines that differentiate objects in space and time. Often these spatio-temporal boundaries are rendered in discourse and have corresponding discursive boundaries. Following Foucault (2002), this is necessary for us to become “conscious” of the material objects. Discursive boundaries are lines that define objects in the field of discourse. This includes disciplines, ideas, and subjects. In fact, I suspect that they must be rendered in this fashion for us to conceptualize them. Finally, identity boundaries define individual people and determine how they “fit in” to a particular spatio-temporal and discursive environment. Identity boundaries are material and discursive, and represent a unique boundary in this study because we pay so much attention to human identity. Understanding these kinds of boundaries is important for the next section where I start discussing how these boundaries move over time and how constraining they are. I do recognize that the distinctions I’m making here are fuzzy and there is much movement and flow in regards to boundaries, but I am using these general categories to help understand how boundaries form and interact with each other. I found as I was analyzing the data for this study, when I looked at the change of the boundaries, I had to make sense of where the boundaries resided, which is why this section precedes the next. In the next chapter, I will discuss the changes in boundaries that occur and how this change and the memories produced by it define

student uptake. It is this change of boundary over time that I would argue is transfer, and it only occurs on the moment-to-moment scale where students live.

#### **Chapter 4. Movable Boundaries: Flexibility and Permeability of Boundaries**

In the previous chapter, I discussed at length the various fields across which boundary-work occurs. The spatio-temporal field is the physical and chronological space in which matter exists. Boundaries in this field differentiate these bodies. As I began this study, I was interested in recent work in object-oriented ontology and ambiance (Bennett, 2009; Dingo, 2012; Dobrin, 2011, 2012; Hawk, 2007; Lefebvre, 1991; T. J. Rickert, 2013; Soja, 1996), which I discussed at length in the first chapter. The implications of these theories is that objects are active agents in the interactions that occur in an environment and that mark the boundaries that differentiate matter into individual things. One problem with much of this work is that measuring or collecting data on ambiance is challenging. This is why Barad's grounding in quantum physics is so useful. By introducing scientific data from experiments conducted in that field, Barad is able to discuss boundary-work in a much more concrete way compared to the purely theoretical arguments—one of the major weaknesses of much humanities theory. My goal was to capture the nature of the spatio-temporal field and the boundaries that form therein. I was interested in this in part because of the spatial turn and object-oriented turn that have gained traction in the field of Writing Studies, and because I was interested in looking very closely at the moment-to-moment interactions that occur through a course of FYC that inevitably involve the spatio-temporal field insofar as the material and temporal features of the spaces in which students learn are not containers, but active participants in the learning process (Jarratt et al., 2009; Lefebvre, 1991). However, as the data started coming in and I began analyzing it, I found significant limitations to the focus solely on the spatial in part because the spatio-temporal boundaries played only an affective role until they were rendered knowable in the field of

discourse. Further study that focuses more on affect would likely yield tremendous results on spatio-temporal boundary-work. As I discussed in the previous chapter, discursive boundaries are those that exist in the field of discourse and are part of human consciousness and pre-consciousness. A discursive boundary might be the one that defines a skill or strategy or piece of knowledge like “writing” or “revision”, or it might define a collection of these as a discipline or discourse. These boundaries turned out to be tremendously interesting because how students understood fields of discourse played a significant role in how they learned and performed. It is in the discursive boundary-work that this study provides the most significant results. The final field in which this study found boundaries is the field of identity, which include spatio-temporal and discursive elements. Identity boundaries are important because they give a student a position in the space, time, and discourse of the class. This boundary allows them to either engage with or avoid the class and its work. The need to distinguish between these fields showed up later in the data analysis process, but in writing, it made sense to discuss them as the first level of the taxonomy I am presenting here.

The first remarkable characteristic of boundaries that appeared in the data was their flexibility and permeability. As with the case of the fields, this distinction is not sharp, but does provide a useful way of thinking about the boundaries themselves. Further, as the data revealed patterns in the boundaries, I realized that the boundary itself was an important place to look, not just how students interacted. A flexible boundary changes over time. For instance, the boundary that defines “writing” is a discursive boundary because it defines an idea that includes certain skills and practices and excludes others. In the beginning of the quarter, Lisa saw writing as something she “hate[d]” very much, was part of the English discipline, and

involved analyzing literary texts for themes and literary devices. By the end of the quarter that boundary defining writing had moved to be something she appreciated, was part of the work she had already been doing in her Physics major, and involved rhetorical strategies. This is an example of a flexible boundary insofar as the boundary defining writing moves over time. Jan, on the other hand believes throughout the quarter that “revision” only involves copy editing and fixing mistakes. This understanding of revision never changes, which means the discursive boundary that defines it never moves. Instead, Jan invents a new concept called “full revision,” which meant going back and throwing out ideas and starting again to account for the work that he was forced to do by Gorgias’ comments. The boundary defining revision doesn’t move or flex and is therefore inflexible. To account for dissonance between his actions and his understanding of revision, Jan draws a new discursive boundary, but the boundary defining revision doesn’t change.

Permeability is a little bit trickier and more research could significantly help flesh out this characteristic. Permeability refers to a boundary’s ability to constrain or prevent movement. My initial analysis of the data focused on boundary flexibility, but as I looked at the results, I started noticing that the boundaries that are marked are not always effective in constraining action. For instance, as I discuss above, the boundary that Jan sees defining “revision” is inflexible and defines revision as including copy editing, but not changing ideas. This boundary, however, doesn’t constrain his actions. In fact, among focal participants, he perhaps does some of the most substantial revisions of anyone. These revisions were predominately instructor or peer sponsored. He doesn’t understand his actions in terms of revision, however, and it is only when I asked him to account for these revisions in light of his

understanding of revision that he invented the concept “full revision” to address the dissonance between his actions and what he understood revision to be. I suggest the boundary defining revision for Jan is permeable because the exigence of peer and instructor comments is not stopped by the boundary of revision. Impermeable, or less permeable boundaries were harder to see in the data. These boundaries appear where the boundary and the effects of the boundary correspond. For instance, the discursive boundary defining writing for Lisa is not particularly permeable. When she encounters writing assignments for the class, her performance on these assignments is constrained by this definition of writing. For instance, on the first several assignments she expresses a major concern because they don’t fit her understanding of writing. As a result, her understanding of writing begins to change. If the boundary were permeable, she might follow the instructions of the assignment without changing her definition of writing. In that way, the boundary defining writing wouldn’t constrain her action. Instead, the boundary defining writing changes to account for the new demands of each writing assignment. For each assignment, however, her experience of writing is constrained by her understanding of what writing is, which depends upon the discursive boundary that defines it.

Boundaries in the data generally appear to fall into four categories based on their permeability and flexibility. Inflexible, impermeable (II) boundaries do not change over time, are remarked in basically the same place each time, and are effective at constraining a region in space, action, or identities. For instance, the student who Gorgias shames that I discussed in the last chapter marks a set of II spatio-temporal and identity boundaries that isolates him from the shaming force the instructor exerts and from the entire class (he skipped the next several days).

He does return, which suggests that flexibility and permeability are relative across time. Some boundaries that are for a period of time highly inflexible and highly impermeable might become more flexible or permeable in the future. I suggest that thinking of these characteristics of boundaries is useful, but has some limitations, which I will discuss in the final chapter at length. The second category of boundaries are inflexible, permeable (IP) boundaries. The discursive boundary defining revision for Jan is an example of this kind of boundary. It doesn't change but the force that instructors and peer reviews exert can permeate it allowing for actions beyond those constrained by the boundary. The third category of boundaries are flexible, impermeable (FI) boundaries. These boundaries change over time, but generally constrain the space or actions. For instance, the discursive boundary that Lisa sees defining writing is an FI boundary. It changes over time as her understanding of writing expands, but in any given moment, it constrains her writing. Finally, flexible, permeable (FP) boundaries are those that change over time and do not effectively constrain movement. For instance, Jan identifies rhetorical techniques learned in English as relevant to Political Science. This involves the process of the boundaries between English and Political Science overlapping as the specific writing skills occupy both spaces equally.

In this discussion of the flexibility and permeability of boundaries movement is inseparable. Movement turns out to be challenging in part due to the relativistic shift that I proposed in Chapter 1, but also because in analyzing the data, it might be hard to say whether it is a boundary line moving or a bounded area moving between other bounded areas. For instance, with Lisa's expanding definition of writing, it is pretty clear that the discursive boundary defining writing expands—or moves to contain a larger set of skills, places,

disciplines, and feelings than it did at the beginning of the term. This boundary moves because her identity boundary is sufficiently permeable to take up the material that Gorgias presents in class and in activities. In other words, the knowledge and skill set that is part of Lisa (contained within her identity boundary) grows as new perspective, knowledge, skills, and experiences are taken in. This causes the boundary-work that defines writing to change producing a discursive boundary that flexes over time. In other cases, things are a little less clear. Jan, for instance, is able to effectively apply rhetorical strategies learned in his English class to his Political Science class assignments yielded what he calls the best grades he'd received on a paper "ever." From the earlier days of transfer research this notion of "moving" skills and knowledge from one context to another was seen as suspect (Perkins & Salomon, 1992). In the first chapter, I even suggested it might be useful to think of the contexts moving around Jan rather than Jan moving between the contexts. From this perspective, we might see the boundary of English extending into or overlapping into the field of Political Science as Jan sees "English skills" being relevant there. However, at the same time, Jan doesn't identify rhetorical strategies as "English skills" and suggests that they fit into Political Science just as well. What this suggests is that the boundaries of Political Science and English overlap as rhetorical strategies permeate both discourses.

In short, movement might be the permeating of particular knowledge or skills across discursive boundaries or bodies across spatio-temporal boundaries. Movement can also be seen in the change of boundary lines over time. In reality, to best understand the way Jan deploys rhetorical strategies in his Political Science class, it is necessary to look at the various boundaries simultaneously drawn across the three fields. Jan's identity boundary had to be

sufficiently permeable to allow the knowledge of rhetorical strategies to permeate into his set of skills. At the same time, Jan moves through space as he goes from one class to another. Finally, since Jan doesn't explicitly recognize rhetorical strategies as belonging to English, it might be useful to think of the disciplinary boundaries between English and Political science as moving to overlap one another in this instant when Jan recognize the strategies as relevant to both. Since this study attempts to overcome some of the limitations to the view of movement in transfer—as a linear if not mono-directional—I see movement as multi-directional and occurring in multiple fields and with multiple boundaries simultaneously. As a result, movement becomes more complicated but better accounts for the phenomena of interest. As I discuss, I do believe it would be a good next step to attempt to study the movements of boundaries even more closely than this study can. I will discuss this at length in the final chapter.

Finally, before I turn to extended discussions of each of the boundary categories, I want to take a moment for a word of caution. We might presume that the more permeable and more flexible the boundary the better, but I don't present this taxonomy as a normative structure. What's more, the focal participant most inclined to inflexible, impermeable boundaries (Michael) was very successful in his FYC class insofar as the instructor responded positively to this student and looked to this student as a "star" student in the class. On the other hand, this student rejected the class and ultimately did not complete the requirements of being a focal participant, so I do not talk about him much throughout this study. Instead, I want to describe the nature of the boundaries. Each type of boundary has different effects, and a teacher must engage with each with unique approaches. Further, these categories are not strict, but rather

degrees along a spectrum. For the remainder of this chapter, I will provide some examples and discussion of each of the categories.

### **Inflexible-Impermeable Boundaries**

Inflexible and impermeable (II) boundaries are boundaries that remain in the same place over time and effectively prevent movement. These boundaries were actually very difficult to observe, in part because students are at school to learn and apply what they learn, and in part because the course design for FYC at the University of Washington concerns itself heavily with transfer and promotes making the rhetorical strategies that will be useful across disciplines. The best examples of II boundaries that appear in this data include the spatio-temporal boundary around the class on medieval history that Jan took that I discussed in the previous chapter. In that case, Jan explained that once the door was closed, “two minutes before class,” nobody was allowed in or out for the duration of the class (though, I suspect even an emergency would have made this boundary permeable). I doubt the existence of a perfectly inflexible, impermeable boundary, but I use it in this study as an end of the permeability spectrum. The examples of II boundaries that I include below are to some degree permeable, but significantly less so, and much of the movement that occurs across the boundary is instructor sponsored (i.e. the instructor forces students to make connections).

The most visible boundaries that exist in the II range of spectrum are those between the service learning sites and the class context in English 121. These boundaries do have some permeability because Charlotte designed the course to require some movement between the service learning sites and the in-class context. This spatio-temporal boundary was largely established by the physical distance between the sites. While students moved between the two

sites, they recognized them both as two discrete and only incidentally related spaces. This suggests that the spatio-temporal boundary between the service sites and the classroom was rendered into a discursive boundary that caused students to distinguish between the two. This boundary was fairly impermeable as well. When asked about the relationship between the service site and the in-class context, all focal participants in English 121 reported that they were two “separate thing[s].” This sentiment did not change at all throughout the term and thus the discursive boundary is very inflexible. These reports were further supported by my observation that experiences from the service sites were almost never brought up in classroom discussion or activity to any significant extent except at the end of the term when students had to present their service learning. The study design did not allow for any observations of the service sites, and so I was unable to see if students were applying anything they learned in class in the service site.

Even though I call this an II boundary, some permeability did exist, but only insofar as Charlotte forced students to make connections. Unlike many graduate instructors of FYC, Charlotte is a Writing Studies scholar and is well versed in transfer research and the best pedagogical practices. As such, she made sure that there was a clear overlap between the work on literacy in class and the types of organizations for which her students could volunteer. The permeability that did occur appeared when Charlotte explicitly prompted students to make connections. This boundary did become increasingly penetrable as the term progressed, and Sally, who was more invested in her service site than most did apply some of what she learned in reading to her discussion of the service site (Brandt, 1998). When students had to present on the projects they’d been working on for their service organizations during the final week of the

quarter, I still noticed a sense of disconnect between the presentations and the material covered in class. I do not have any notes of students using ideas or language from the course to talk about their service work during their presentations. That being said, I cannot claim for sure that the course material didn't influence their thinking on their projects. If it did, it did so in a less visible and explicit way.

These II boundaries are spatio-temporal and discursive, and perhaps the most important factor that limited the amount of movement between the service site and the class context was the spatio-temporal boundary produced by the physical and temporal distance between the two contexts. All of the students went off campus, and for Claire, her trip to her volunteer site was an hour long bus ride. Sally explains members of her group live "at the University of Washington and then Rainier is kind of 30 minutes away from here, and they feel like it's kind of inaccessible to go down there and interview people." The only reason Sally was able to go to the site more regularly was because she was enjoyed going down to the site. She explains, "I probably have more access to the whole community because I actually go down to Rainier a lot." The inflexibility of this spatio-temporal boundary is fairly clear. The sites are literally spatially and physical separate from the classroom. The discursive boundary between the sites and the classroom is also inflexible insofar as students didn't report any change in the boundary between the service site and the class. Even if they enjoyed the work they did there, it still remained separated from the class by the discursive boundary.

While the physical and temporal distance perhaps makes inflexible boundaries between service sites and the class inevitable, the boundary has limited permeability (certainly, there was some permeation of knowledge between the sites, but it was fairly limited compared with

other boundaries that I observed). Part of this impermeability might be the result of students selecting and approaching the volunteer organizations themselves through the Carlson Center<sup>10</sup> on campus. I suspect that for students in English 121, the service component feels more like a feature of their relationship with the Carlson Center rather than the English 121 class. In addition to this the configuration of the course and the evaluation practices of the course played a significant role in hindering connections between service and the class. In FYC at this university, students receive grades that are mostly based on their portfolio. In the service learning FYC, the same is true, but a small portion of the grade is based on their completion of the service component. Students generally direct most of their attention towards the grade, particularly in FYC, and particularly at a university like this where undergraduate students must have ~3.8 GPA to gain entry to the most popular majors like Computer Science. As a result, observations of classroom chatter and focal-participant interviews showed that students focused most of their attention on the portfolio and saw the service as an additional, but less important, requirement for this particular version of the class. Even Claire who was very enthusiastic about volunteering didn't demonstrate much flow of knowledge or information between the class and the volunteer site. This suggests that perhaps the boundary between her identity and the service site was permeable but that between the service site and the class was less so.

Like Claire, most of the students gained much from their service; all of my focal participants except one claimed to have learned a great deal from the work and wanted to

---

<sup>10</sup> The Carlson Leadership & Service Learning Center is the center on campus that organized the major institutional service learning efforts. They run numerous service learning programs in addition to English 121—the service learning program for FYC.

continue to do that kind of work in the future. Sally, for instance, was very invested in her service site and spent more time than was required there and in the surrounding neighborhood visiting with people. In interviews, Sally spent a great deal of time discussing the service site and had the most success in connecting material from the class to her service site. During an interview in the second week of the quarter, Sally made a connection in discussing course readings to service learning. I asked her about the purpose of the third short writing assignment, which asked students to create a conversation between Brandt's article and Leroux's article. Sally explained that it was first a way for Charlotte to assess "if we do know" the material. Then she explained, "maybe if we personally digest it we can have our own ways of evaluating literacy and of course that is going to impact how we're going to tutor the students at our service learning projects." Sally predicted that literacy would be relevant to her service learning site, and specifically, she might consider how "literacy sponsors" might be important. This initially looks like an example of a fairly permeable discursive boundary between the two sites.

However, when I asked Sally to explain what she was doing at the site she described a child she was tutoring who had been "faking her reading assignments." When Sally tried to help this student, she explained that the student tried to make her do the reading for her. Sally explains the problem, "I mean I'm sure that doesn't reflect her society, but I mean, I wonder like if maybe her parents just didn't emphasize reading or literacy that much." I was surprised that Sally never mentioned the notion of literacy sponsors or anything more specific from her course readings than the more general notion of literacy. This suggests that while literacy might be a common theme between the service site and the class, the specific details and specific

language didn't permeate between the two. Her reference to "society" more likely connects to Sally's strong interest in sociology, but to demonstrate that permeability, one would need to have more evidence from what occurred in Sally's sociology class.

Some II boundaries became less impermeable as time progressed, as I discussed above as Charlotte worked to encourage students to make connections between the service site and the classroom. Some boundaries, however, became increasingly inflexible and impermeable as time progressed. One characteristic that seemed to denote a less flexible and less permeable boundary was the speed and ease at which the boundary was marked. For instance, most participants strongly resisted selecting pseudonyms for this study. Three participants, however, were quick to select pseudonyms. Gorgias selected his without any question and almost immediately when I asked him to select one. This matches his interest and commitment to classical rhetoric. This suggests a fairly inflexible and impermeable identity boundary because Gorgias has a sense of who he is and through our conversations I saw that to be fairly stable and resistant to change. Likewise, Charlotte was quick to select a pseudonym, having used the same in previous studies. She had a clear sense of where her study participant identity boundary had been drawn previously this familiarity suggests that the boundary is stable. Finally, Jan was the only focal student participant who was quick to select a pseudonym. I asked him for a pseudonym, explaining why I wanted focal participants to do this themselves, and after asking if it could be anything, he selected Jan Novak. I discuss this in the previous chapter, but it is important the way in which he marked this boundary. By quickly engaging with this boundary-work, Jan shows his comfort with defining himself, which suggests his identity boundary is fairly inflexible. This fit with my experiences with him throughout the quarter. He

was quick and ready to occupy dominant positions in class discussion (he was one of the main talkers in class), in our conversations (he held the floor in our conversations and took longer turns than some of the other students), and he was interested in “powerful” writing and he initially took on an “arrogant” tone. In class discussion, after Michael, Jan took the most turns and was most ready to take the floor from Gorgias. This suggests that he was comfortable asserting his identity in class by becoming visible in his contribution to the conversation. In our conversations, Jan’s answers tended to span paragraphs rather than simply sentences like some of the less assertive focal participants. While it is difficult to say how permeable his identity boundary is, and it is certainly permeable to some degree because he does take up rhetorical strategies learned in the class, he was less inclined to change who he was and saw himself as, and his sense of self was less influenced by external influences than some students were. This all suggests that Jan’s identity boundary was fairly inflexible and impermeable in the context of this class. These three participants who were quick to and willing to identify themselves through the selection of a pseudonym that would represent them in this study had more habit with their identity boundary, which I suspect means it is less flexible. Further, that this identity changes little for them, the boundary is likely less permeable because their identities do not incorporate new features particularly easily.

Catherine provides another example of an II boundary, specifically the discursive boundary defining writing. This passage is interesting because it occurred in her final interview in response to my question about whether she saw her writing improve. She explains:

Yeah, we didn’t really go into any sort of actually improving how you write  
[pause] improving how you should [pause] which we did a lot in high school. You

know, working with like structure of sentences and using specific words and not using 'that' all the time, and 'is.' And trying to use more direct verbs. We didn't do that. But I think it's best at this point. At this level it's assumed that you've already learned that. And so, cuz, I mean he already assumes we know how to write and it's just learning how to write specific things.

When she says, "write specific things," I did not get the sense that Catherine was talking about genres, but rather specific topics. To Catherine, "writing" is a structural activity that involves working on sentence structure, diction, and other formal issues. She is suggesting that once students have learned "writing," they just need to learn the specific topics they have to write about. This is important and illustrates an II discursive boundary defining writing. This interview happened at the end of the quarter after Gorgias had students focus heavily on rhetorical strategies for the first sequence and a formal research project for the second sequence, both of which were intended to expand students understanding of what writing is—or in my terms, expand the discursive boundary defining it. Catherine had learned these skills and had learned about the topics she was writing about (Common Core for the first sequence and undocumented immigration for the second), but there is still a sense in this interview that these things learned are separate from what Catherine sees as writing, which students are assumed to already know. So, perhaps Catherine's total knowledge increases and the boundaries defining rhetorical strategies, and the topics she's writing about move throughout the term, but her reported discursive boundary defining writing remains fixed. Moreover, when she is asked to revise for the portfolio, or improve her writing, the changes that occur between drafts are

minimal and almost exclusively formal suggesting that when the goal is to improve writing, Catherine's understanding of writing is focused on the formal.

The last II spectrum boundary that I want to look at appears in Claire's discussion of research papers. There are actually a few important boundaries here: first, the discursive boundary defining research, and the discursive and spatio-temporal temporal boundaries defining her high school class and English 121. In high school, Claire conducted a fairly large scale research project for Chemistry that culminated in a research paper. During this project, she explained that she consulted scholarly sources, collected empirical data, analyzed the theory and data, and developed a claim about a particular chemical compound (salicylic acid). She describes this process as "scrounging for anything I could get online." Based on the work that Claire did, it seems that this is a prime example of research. She recognizes some connection between this and the research for English 121 calling them both research, but as she starts working on the project for English 121 a clear distinction appears between the two. I asked Claire if she'd done "this kind of research before?" I wanted to tease out how similar she thought the two were.

Claire replied, "I mean, yeah, I did...not like this. I've never done a proposal really. Yeah, I've never done a proposal. I've never really had to do it because most of the one's I was doing were for information, and I was working on information that I had." What Claire meant was that she saw her past research as being based on information that was provided to her, and so was reporting, perhaps, rather than researching. The assignment for English 121 was making her go to use the library and use research databases, find her own sources, and collect interviews. I'm interested in this because while she nominally identifies this project, the writing

she did in high school, and the project for Chemistry as research. However, she doesn't report a connection between the process of doing research for Chemistry and English 121 as related or connected, even though the processes are fairly similar with the major difference being the specific methods for collecting data differ. I suggest that this is a less permeable boundary because there was potential for the strategies she learned in the Chemistry research project to influence how she conducted research for English 121. Again, since my research methods didn't allow me to sit with Claire while she was working or observe her thought process, I cannot say for certain that there was no permeability in this boundary, but Claire did not report any movement of knowledge learned during the Chemistry research project to the English 121 project when I prompted her to do so. I suspect there might be a few reasons for this limited permeability. While in a transfer positive program like the one at this university we encourage students to make connections between what they've learned in high school, it is not uncommon for students to work hard to establish a discursive boundary between high school and college writing. Many university writing contexts—even in our own programs—encourage this boundary marking by maligning the five-paragraph essay—a major genre taught in many high schools—and identifying a clear distinction between high school writing and college writing. We do this both explicitly by discussing things like “college writing” and “academic discourse” (P. Bizzell, 1992), and implicitly by distinguishing our writing programs from high school writing by either pushing away from them or by attempting to colonize them.<sup>11</sup> This discursive boundary between high school and college that is evident in Claire's discussion of

---

<sup>11</sup> This notion of the relationship between university writing programs and high school writing programs is a huge and politically fraught can of worms that I am not going to get into here.

research is reinforced by the spatio-temporal boundary. High school and university are spatially distant, often very distant particularly in a large university like the one at which this study was conducted. Further, the physical boundary of the research library plays a major role. This particularly library is of the Collegiate Gothic style with spires, arches, buttresses, and stained-glass windows. In Claire's case, she went to a very small high school in Scotland. Her advanced Chemistry class in which she did her research project had two students. As a result, the two contexts would seem very dissimilar for Claire. She reports just that in our interviews. She describes her chemistry class as underfunded, and generally speaks dismissively of the high school she went to in Scotland. She explains, "My school was pretty disorganized. It didn't have a lot of funding and it was in this tiny village in Scotland. So, I kind of just did whatever, really." Claire didn't really strongly like or dislike her school in Scotland, but she didn't take the school there seriously. So, it is no surprise that an II boundary would form both in the spatio-temporal field and the discursive field as she moves between an underfunded, small school in a tiny village to a large R1 university in a booming city like Seattle.

Some students were more inclined to mark II boundaries. These students generally had a strong sense of what writing is, like Catherine Bell, and great confidence in their role in boundary marking, like Jan. These students both came from privileged backgrounds, and so likely were accustomed to having a good deal of agency in boundary-work in the past. Drawing on the notion of the "hidden curriculum" these students from the upper-middle or upper class have been prepared throughout their education to be directors or managers, which means they have been trained to define projects or ideas or plans (Anyon, 1980). This notion of defining is crucial because boundary-work is about defining the world in becoming, and so it makes a good

deal of sense that these particular students would be more inclined to set II boundaries, or at least be very assertive in the boundary-work. However, I suspect that to see II boundaries most clearly, university students are not particularly good subjects because they are in a position where they are continuously encouraged to learn, expand the boundaries of their knowledge, skills, and experience. In the final chapter, I will lay out recommendations for extending this research and improving the approach to researching boundary-work.

### **Flexible-Impermeable Boundaries**

Flexible-Impermeable (FI) boundaries were more common among students. Unlike inflexible boundaries, these boundaries change position over time but still prevent movement between the regions that they define. For instance, if a student reports a discursive boundary that defines writing, and then interacts with a task demanding writing in that way, then I would suggest that the boundary defining writing is impermeable. The boundary becomes flexible when it changes over time. I suspect that permeability is a characteristic of boundaries in the moment or over the course of one action, and flexibility is a characteristic that spans a longer period of time. In other words, I am calling a boundary flexible and impermeable when in the time of an action (rhetorical or otherwise) it effectively constrains an action or prevents movement, but over a longer period of time (a number of actions) it moves. FI boundaries are common in all fields. In the spatio-temporal field this might look like changing the configuration of desks or renovating buildings. Currently at the university at which this study was conducted, many buildings are being renovated, particularly the buildings that house departments that produce technologies that are in high demand and yield high profits. The flexibility of these boundaries is quite obvious as the buildings are being either literally torn down and rebuilt, or

guttled and rebuilt. The consequence is that students interacting in these spaces in the future will have access to perhaps better designed spaces, the newest equipment, and more environmentally friendly systems. An entire study could easily be conducted on FI boundaries in the spatio-temporal field, and at a rapidly growing university like this one, it would be a highly valuable study because it could give great insight into how these flexing boundaries affect students' ability to learn and live in the university space.

In the discursive field, FI boundaries look like a student performing writing in a way that conforms to their reported definition of the practice, but that reported definition changing over time. Lisa provides a great example of this, and I discuss that example at length below. She has a gradually expanding understanding of what writing is, but in any given moment throughout the term, her writing conforms to her reported understanding. Finally, in the field of identity, a flexible, impermeable boundary would look like a student whose identity changes over time, but in any given moment they resist outside influence. Michael provided an example of this as his identity in the class changes over time, and it becomes apparently impermeable to the influence of the class once Gorgias asked the offending attendance question. These boundaries were not particularly common as students generally, or hopefully, approach classes trying to incorporate into their identity the material, knowledge, and skills covered there.

Since neither of the teachers took much advantage of rearranging the classroom, except for Charlotte who had her students create a double ring for a fishbowl discussion on the day I substituted for the class—an event I will not discuss here because my position as participant observer was disrupted by me occupying position of instructor for the day, I did not see much evidence of FI boundaries in the spatio-temporal field in the data of this study. Of all of the

students, Banana was the only student who reported encountering what appeared to be significant FI boundaries in the spatio-temporal field. This is because for her second major paper, she did a majority of the writing during a trip to Michigan. I asked her to describe this, “In terms of doing that work on the bus and in Cleveland and in the plane, do you notice any major differences about how you write [in those contexts compared to at home]?”

Banana replied, “yeah.”

“Does it affect what you’re doing?”

“Yeah, it’s like because, well at home my main goal is kind of like, ‘okay, I’m going to finish this. I’m going to do this. But then, that mentality kind of disrupts everything. But while I was waiting for the train or while I was on the bus, it’s just like, well I’m gonna do this, like in a very chill way. Like, I don’t care: just write away.’”

“You have time to kill? That sort of thing?”

After a few more questions, I asked, “Is that something you could imagine doing at home, or do you think it was having the time where you just had to wait, and...”

Banana cut me off, “Yeah. Having that extra time. I might as well kill time doing this, and then like all these ideas came pouring out, instead of just me getting ready to write. Like nothing would have ever come out.”

She continues later in the interview, “I think because I was getting so prepared, having all these outlines and stuff; it made me, not complacent, but feel like a fallback. Like, oh, I have all these. I can do other things. Like, I’m at home. I can do other things first, and then I can go back to writing, but when I was on the road, I was like, ‘Oh, I should do this while I’m on the road because I will be busy then.’ You get me?”

Banana had the tendency to do her writing in non-desk/office sorts of places. For instance, she wrote her first paper between basketball games sitting on the bench on the sidelines. While she seems to think “having the time to kill” is an important component to her ability to write as she moved through spaces on her trip, I think the changing boundaries played a major role as well, particularly when we consider what she says about writing at home. At home, she has an equal amount of time to kill, but in that environment, which again is defined by fairly stable spatio-temporal boundaries, she has habits and has the comfort of doing many other things besides writing. Further, that spatio-temporal boundaries identifying home have corresponding discursive and identity boundaries that are her patterns of being, which include her understanding of herself, her study habits, and her general patterns of life. Due likely to habit and memory, these boundaries remain relatively inflexible, and Banana generally follows more stable patterns of action. At home, she writes outlines, has activities that can distract her, and has a comfortable feel for how much work can be done within particular time and space constraints. When travelling, however, those patterns that perhaps normally obstruct her ability to write fluidly, are not present because the spatio-temporal boundaries do not invoke the same patterns of distractions. Instead, the writing can come “pouring out” because Banana doesn’t have the same kind of relationship with the space. In other words, when travelling, Banana has a fair amount of free time, this free time is defined by the spatio-temporal boundaries on the road. The space of this free time, however, is not constrained in the same way as free time in the space of home by memories and patterns of action. As a result, as she moves through space and continually encounters these unhabituated and changes spaces, she finds room to write unimpeded. It’s pretty clear that the spatio-temporal boundaries that

Banana encounters are flexible insofar as the space around her is constantly changing.

However, I would suggest that these spaces are also impermeable in part because they are material, but also because instead of conforming to Banana's habits, they force her to change her writing practices, which ends up being positive for her writing.

FI boundaries were much more common in the field of discourse and on identities. In these cases, the flexible aspect of an FI boundary looks like someone changing their understanding of an idea or a phenomenon. The impermeable aspect means that in any moment, their understanding of the phenomenon—even if it changes over time—appears consistently and coherently in their actions (e.g. their writing) related to that phenomenon. Once again, permeability becomes much more visible in the next two sections when boundaries are permeable, and the characteristic of permeability first became apparent in the data analysis when I noticed permeable inflexible boundaries. Gorgias' class was well designed for this, particularly his first assignment sequence. This assignment sequence started with students writing an editorial piece on a topic (selected from a list that Gorgias provided). Each topic was a highly controversial issue about which students could take strong sides. For instance, some students wrote about the Keystone XL pipeline (this was in 2015, so it was big news at the time), others wrote about the Common Core, some wrote about gun control, and so on. Students were paired by topic, and each student selected either the affirmative or negative argument on the topic. After writing their editorial piece, students were asked to write a counter argument to their partner's editorial. Finally, students were asked to account for their partner's counterargument. This activity was akin to *dissoi logoi*, an activity that involves learning the argument of your opponent so as to better argue against them. This turned out to

be a very important exercise because first it illustrates how students change their understanding of topics, particularly ones in which they're strongly invested. I would argue that this ability for one's understanding to grow is what we see when we see people learn. The boundaries that define their knowledge shift to accommodate new information, and as a result their set of knowledge grows.

Jan provides a great example of this. He wrote about the Keystone XL pipeline, originally taking the position in support of the pipeline. As a pre-business major, Jan explained that this position more closely matched his real attitude towards the pipeline. In his letter to the editor, he wrote with what he calls an "arrogant" tone. For instance, he writes, "yet, the 4<sup>th</sup> phase seems to be sending environmentalists into a chaotic frenzy." Later he describes continuing construction of the pipeline as a "no-brainer at this point in time." This implies an attitude of superiority and an impermeable boundary between the side Jan chooses to occupy and that of the environmental movement. Jan even mentions the "no-brainer" comment as an example of the "arrogant tone." There are a few boundaries being marked in this example. The first is the one identifying the assignment. This one is impermeable and inflexible as Jan identifies the genre and recognizes immediately the demands of the letter to the editor genre, which generally are polemical and take on an aggressive or argumentative tone. Jan conforms to this genre precisely in his letter. The second boundary is the one I mentioned above, that forms between himself and the environmental movement. He does this by identifying the environmentalists as "frenzied" extremists who wouldn't even support a "no-brainer" idea. By marking this impermeable boundary there is no way for Jan to hear the argument of the other side. While this fits with the genre, it doesn't work for Jan's peer reviewer.

Jan's peer reviewer challenged the "arrogant" tone. Jan explained, "My peer who graded it mentioned how my first op-ed was very, um... very arrogant because I'd...from my impression of the first assignment, it was supposed to be highly opinionated—highly arrogant—so that's the voice in which I wrote my paper." As a result of the boundary-marking the peer reviewer did in identifying Jan's paper and the problems with it, Jan made substantial revisions to the letter. He kept the evidence and core arguments exactly the same, but eliminated all the arrogance. In the new version, Jan maintains a boundary between the environmentalists and pipeline supporters, but that boundary becomes more flexible in the second draft that Jan revised for the portfolio. While there are clearly still two distinct sides, Jan focuses on the logical argument for the pipeline and creates grounds for conversation about the facts by providing potential replies from pipeline critiques. The boundary defined by the genre of the letter to the editor doesn't move at all for Jan, but he recognizes that his tone needs to shift and that one genre may not be sufficient for making his case to an audience of his peers. The boundary defining Jan's perspective on the Keystone XL pipeline is impermeable because in both cases, his reported perspective in interviews and the resulting arguments in his paper are consistent. In other words, Jan does not report supporting the Keystone Pipeline and yet incorporate evidence that strongly opposes it. His understanding of the issue is consistent with his argument. Likewise, his performance of the op-ed genre in the first round conforms to the conventions even if it is not totally appropriate or well received or fitting in the academic discourse. Permeability in discursive boundary of genre in this very way appears clearly in the later sections of this chapter.

Jan also makes a major shift in the boundary identifying the topic of his second major paper. Jan initially set out to do research on the Polish Solidarity movement that fought against the Soviet Union. By the third and fourth week of the quarter, Jan had focused his project somewhat on the economic impact of the movement on the Soviet Union. He explains, "I still want to do solidarity movement, maybe more, I want to apply it a little more to what I'm doing now in my undergrad which is more like business stuff. So maybe discuss how the solidarity movement in Poland directly or indirectly affected Soviet economics, and how that may have weakened them, because that, in turn, was essentially what they wanted to do." The initial topic was clearly too large, so he adjusted his focus. This represents a flexing boundary that defines this project. As the second sequence arrived, Jan started researching his topic, finding it to still be too large. As a result, he shifted his topic entirely. His initial focus was on the solidarity movement in Poland that would require considerable research into historical documents. Overwhelmed, Jan changed his topic to study the effects of exercise on academic performance using an online survey to do the research. This boundary flexing was substantial, and represented the greatest movement of any boundary observed in this study. Once again, even though the boundary defining his project is flexible, in both cases his performance of the writing task and his stance regarding the topic generally conforms to his reported understanding of the assignment and the topic. The discursive boundary that defines the project is flexible insofar as it changes, but also impermeable insofar as it constrains Jan's actions in spite of external pressures that might have altered his approach.

Lisa had a similar experience with this assignment sequence as the other students in Gorgias' class. She wrote on whether universities ought to be penalized financially for not

responding to sexual assault and misconduct cases. Lisa explains her thought process and how her perspective changed, “I mean, at first when I approached it, it was more like, well, there’s no question about this. All cases should be reported, and if not, there should be some sort of penalization or penalty, but then I kind of flipped—twisted my view on it and well, maybe it’s not if they should or should not report, but if they don’t, what can we do in an action for that? So, yeah. I just looked at it in a different way.” Not only does Lisa’s perspective shift slightly, but it expands. This issue ceases to be one of punishment, but one that requires a response to fix the problem. The boundaries that define the issue of reporting on university campuses change for Lisa not so much in regards to what the problem is but how it might best be countered. The most interesting example of FI boundaries appears in Lisa’s experience with writing itself. Lisa majored in applied physics and found writing particularly painful initially. She explained in our first interview, “I definitely hate [writing]. Um, I’m just not efficient at it. I get really frustrated. I’m very nitpicky with words, and I’ll sit there for a long time just trying to think of the right word. I always have like 50 thesaurus tabs open on my computer. So, yeah. I really really hate writing.” Lisa considered FYC a necessary evil and had put it off until her junior year. The discursive boundary defining writing identified the activity as unpleasant and an obstacle. The boundary was impermeable because it constrained Lisa’s ability to write and her willingness to take up the task. Gradually, as the quarter progressed, this boundary began to move.

This shift began with the lessons on classical rhetoric and argumentation that Gorgias provided during the first sequence of the class. Lisa appreciated these lessons because she saw rhetoric as a pleasant change from the literary analysis she’d done in high school writing

classes. While she couldn't articulate the difference between the two kinds of writing, the boundary defining writing expanded as she learned about alternative types of writing beyond literary analysis. As the boundary of what writing is expanded to include rhetoric, she began to warm up to it and recognize it in her own daily activities. She explains, "As someone who's in the sciences, I definitely do this in day-to-day life with friends." We recognize that scientists write as much as any academics, and their writing is concerned with argument just as much as writing in the humanities. Just arguments are being carried out in different ways. Clearly, prior to this realization, Lisa didn't seem to recognize science writing as writing—or at least she didn't describe it as such in my interviews of her—but the boundary defining writing expanded, and with it, Lisa's understanding of it. What's even more interesting is that as writing expanded to include rhetoric and therefore the kind of writing she'd already been doing, Lisa learned writing and rhetoric as a way to explain something she was already doing, but didn't have any words to describe. The boundary is impermeable because Lisa's understanding of writing at any given point does effectively define her response to it. Early in the quarter, she describes writing as painful, something she really hates, and less relevant to her field. She also reports her earlier writing assignments as a chore. As the quarter progresses, her understanding of writing expands and the way she takes up writing conforms to this expanding understanding of it. This suggests that while the boundary defining writing changes over time, it is impermeable because it constrains her writing from alternative influences.

By the end of the term, Lisa didn't love writing, but she ceased to hate it and even appreciated it. In her cover letter for her portfolio, Lisa writes, "what used to take four or five hours to write a three page paper now takes one or two hours with even better quality of work."

Overall, this class helped boost my overall confidence in my writing flow and structure, my argument abilities, and my efficiency with written assignments.” While portfolio reflection might be written more for the instructor’s benefit than the students, this passage echoes what Lisa told me in our interviews, and looking at her notes for the major paper, this is clear evidence that Lisa’s understanding of and appreciation for writing had changed dramatically as the boundary defining writing changed through the course of the class.

These three examples all come from Gorgias’ class. The first assignment sequence, the parts-to-whole approach that Gorgias took, and the amount of built in revision seemed to produce a great deal of boundary movement as students interacted with ideas and assignment iteratively and over a longer period of time. This was less the case in Charlotte’s class in which each assignment served a purpose but was not a component of a larger piece. That being said, students did still encounter FI boundaries. Sally provides the best example of FI boundaries in this class, particularly since much of the shift appears in the field of identity. From my observations in class, Sally had a tendency to interact with other students less than many of her peers. Early in the quarter, she struggled somewhat to feel like she was part of the class, or had an identity space she could comfortably occupy. During our third week interview, Sally explained, “I consider myself like 80% introverted and 20% extroverted, but the introverted aspect stops me from engaging with the class through like whole massive discussion.” In other words, Sally identifies herself as having difficulty connecting with the class. I asked her to say more about how she sees herself, and she replied:

I think shyness is different from introverted, but I do feel like I’m a bit shy because of course, I want to talk to the teacher, but at the same time, I don’t

want to get things wrong, and I think that's the whole environment. Like, everyone in the class except for a couple people, people don't want to be wrong, and so I'm kind of that same aspect too. But the introverted part is like...I guess, kind of how like I'm fearful I am of speaking in class because if I talk, maybe people aren't going to get what I'm trying to say, but I feel like I get a lot out of what peers are saying, and of course there's not enough time for everyone to have a say, so I'm kind of by default staying silent so that other people can say their opinion, and I can just take notes. But I do realize if I don't talk, that's my participation grade going down the drain.

There is much going on in this passage. First, Sally is identifying herself, and in doing so marking an identity boundary that prevents interaction between herself and the rest of the class. The one place she leaves room for connection is with the teacher. It is interesting to note that her understanding of talking in class is talking "to the teacher," rather than talking to the class as we might like class discussion to be. This boundary is impermeable because she doesn't connect with the class, and instead stays silent. Further, she struggles to connect with the teacher despite her desire to do so. This appears in the fact that even at week 3 Sally didn't know Charlotte's name and had never attended office hours. By the second sequence, however, Sally had visited Charlotte's office hours and the boundary marked between them gradually changes. Instead of being some nameless professor from Sally's perspective, Charlotte becomes someone Sally can read out to when she's struggling or needs advice. During the second half of the term, Sally visited office hours more regularly, and in our interviews spent more time discussing the feedback and interactions she'd had with Charlotte. While this

boundary did change over time, Sally kept the boundary between herself and her peers rigid and impermeable. Whether it is a result of the boundary or a cause for Sally to mark the boundary in this fashion, Sally began expressing dislike and resentment for other people in the class including her group members, one of whom she describes as bossy (worth noting that this bossy student is Claire from this study).

FI boundaries are interesting because they illustrate a change in perspective or configuration of the world. As students grow and develop, they learn new things and the boundary lines that define the world around them shifts, sometimes drastically. The fact that these boundaries are impermeable is important because they are meaningful and define action. For instance, with Lisa's case, the way she sees writing—the way she interacts with the boundary that defines it in discourse—changes throughout the term, but in any given moment, that boundary defines how she takes up writing tasks. Likewise, Sally's identity boundary that defines her position in the class changes, but it also constrains her ability to interact with her teacher and peers. As I move to permeable boundaries, the notion of permeability will become clearer, as I found it to be more evident in cases of permeability, but for now, it seems that the students who had the most success in growing throughout the term were the ones inclined to participate in boundary-work in a way that produced boundaries that were substantial but also changed over time. I'll discuss this at length in the next chapter when I connect all of this boundary work to transfer and micro-transfer.

### **Inflexible-Permeable Boundaries**

In the previous two sections I discussed impermeable boundaries, or boundaries that prevent movement or constrain action. I do believe that these boundaries need more

investigation, and I will discuss approaches to this in the final chapter, but I suspect that focusing on study sites in which impermeable boundaries are more prevalent would be useful. I do believe that the division between the political Left and Right in the United States would be a tremendous target, as would online filter-bubbles. Permeable boundaries appeared more clearly in the data. These boundaries did not constrain movement. For instance, I will describe below an interesting phenomenon that occurred with two students of academic writing conventions permeating into assignments which students reported being defined by public, non-academic genres (i.e. letters). In these cases, the discursive boundary of the genre was permeated by conventions of other genres. I was surprised to see these boundaries and was very interested in their effects. Permeability is particularly interesting because in transfer research scholars have described low road or unconscious transfer, which means the application of knowledge and skills from one context to another without awareness of the transfer (Perkins & Salomon, 1992; D. Russell, 1995). In data analysis, permeable boundaries first appeared most obviously in the case of Jan and his understanding of revision. In fact, this phenomenon was what initially set me on the path towards focusing carefully on the characteristics of boundaries themselves and to do all of this taxonomy work. Not unlike most students in FYC, Jan entered the class and remained resistant to the notion of revision throughout the quarter. He explained that most of his past writing had been “one shot” deals with perhaps some copy-editing for grammar and spelling. I asked him, “so, how do you feel about being forced to do revision?”

He replied, “It’s different. It’s like, why would you? If you put in a lot of effort in the beginning to write something, like why would you have to revise it? Like intuitively. But, I know

that if there's many mistakes you make the first time you go [then you might have to fix some things." Jan wants to acknowledge the value of revision, particularly since it is baked into the outcomes and the design of FYC at this university. However, he retains this notion that revision is either only for copy-editing or only for papers that are fundamentally flawed. This notion does not change much throughout the quarter for Jan. This makes the discursive boundary defining revision fairly inflexible. On the other hand, looking at the work Jan does, he makes major, substantive changes to his writing. In the first sequence, Jan not only shifts his tone throughout the rebuttal process, but as he revises the chunks that he wrote, there are major changes as well. Here is a sample of those changes:

The last couple paragraphs in the original version of his letter to the editor looked like this:

And because we are rife with environmental critique, it is valuable to point out that the prevention of the pipeline will in fact increase the necessity for transportation of oil, which emits pollutants into the air. This will in turn lead to a greater and more immediate threat to environment because the risk of environmental destruction from the pipeline is a smaller percentage than that of the constant transportation of oil into the country.

It seems like a no brainer at this point in time. The United States and TransCanada have already completed 75% of the project, so there should be no reason why the project is stagnating. If the legislation is properly vetted, it will reflect how the completion of this project will in fact be posing minimal

environmental threat as well as creating colossal job opportunities for Americans. The United States is now torn between two agendas, both political in nature, but one surely in business and the other, well, quite literally in “nature”.

In the revised version, it ends in this way:

Environmental harm is important to keep in mind when discussing projects such as this, however it is also valuable to point out that the prevention of the pipeline construction will in fact increase the necessity for external surface transportation of oil. This surface transportation emits pollutants into the air at a more rapid rate than the pipeline would. This will in turn lead to a greater and more immediate threat to the environment because the risk of environmental destruction from the pipeline is a smaller percentage than that of the constant transportation of oil into the country.

The United States and TransCanada have already completed 75% of the project, so there should be no reason why the project is stagnating. If the legislation is properly vetted, it will reflect how the completion of this project will in fact be posing minimal environmental threat. Overall, the construction of this project is beneficial to the entire economy and will have long-term benefits as well as the immediate ones proposed.

Notice the substantial changes in both the stance he takes towards the environmental movement and those against whom Jan is arguing. In the revised draft Jan takes a more conciliatory tone throughout and eliminates entirely the ad hominem attacks and shifts his focus away from demonizing environmentalists and to discussing the specifics of the Keystone

XL project while legitimately accounting for the concerns raised by environmentalists. While the boundaries that he marks in the writing are shifting, particularly the discursive boundaries that define environmentalists and supporters of the pipeline, at the same time, his understanding of revision changes very little and remains rigid. The discursive boundaries that define his argument and the rhetorical strategies he uses are flexible and change over time. The boundary defining revision, however, is inflexible, and permeable because it does not constrain his actions even if it does constrain his understandings of his actions. Jan makes fairly substantive revisions of many of his projects throughout the quarter, but those revisions are all peer or instructor sponsored, and Jan does not necessarily consider them revision.

The same is true for the second sequence. Again, the interview in which Jan questions the value of revision occurred in the final weeks of class (week 8, as the class turned to focus on the portfolio). For the second sequence students were asked to write a larger research paper, and the process involved a series of stages in which students worked up from a literature review to several drafts. Once again, Jan made substantial changes to his project from the beginning. The most major of these was a change in topic after he started researching the subject of the Polish Resistance. After discussing the topic with Gorgias, Jan realized that the topic was much too large in scope for four weeks of the quarter. As a result, he first scaled down the topic and then changed to a smaller project where he conducted original research on the effects of exercise on education performance. Again, Jan doesn't see this process as one of revision, even though the field of Writing Studies might consider it to be a great example of it.

The discrepancy between the way Jan understood revision and the way he did revision created some dissonance and lead Jan to define two kinds of revision. One was the copy editing

which he saw as “revision” and fit with the definition of revision that he had when he entered the class. The second kind of revision was what he called “total revisions” which did involve in major rewriting and rethinking. Since the first boundary defining revision is inflexible, even as it fails to constrain Jan’s actions, Jan has to mark a new discursive boundary that defines a new sort of revision that better accounts for his actions. Interestingly, these two definitions match with what Nancy Sommers (1980) identifies in novice and experienced writers. Novice writers generally see revision as focusing on style or grammar. Experienced writers see revision as more major and involving “rewriting.” What we’re seeing, I would argue, is likely related to Jan becoming a more experienced writer and moving into a zone between the two categories.

IP boundaries appeared frequently in focal participants discussions of the writing they did in other classes and the boundaries between disciplines. For instance, Catherine wrote on immigration reform for her major research project during the second sequence. I asked, “Is that something you were interested in before or is that new?”

Catherine replied, “No, we did a little on it in my Medical Anthropology class. We covered it. Saw, like, an NPR thing on it. So I was thinking about it.”

Catherine saw a clear distinction between Anthropology and English relating FYC more to English classes in high school rather than disciplinary writing she did in college. When I asked her if she’d done research papers before, she said she hadn’t even though she had done research papers in her Medical Anthropology class. This suggests that there is a boundary in Catherine’s mind between the two fields. As a result, she doesn’t recognize that research as relevant to the research in FYC. At the same time, Catherine selects a topic that she learned about in Anthropology, and in her writing, the style conforms more closely to the writing I’ve

seen in Anthropology classes (although, a larger analysis of the texts would be required). For instance, Catherine attempts an ethnography to collect data on the experience of migrant workers facing the prevention through deterrence model of immigration policy. While ethnography is familiar to Writing Studies since we often identify ourselves as social scientists, it is not necessarily a common research method for other fields of English Studies. The boundary between Anthropology and English for Catherine is inflexible because she sees the two as distinct fields and the boundary distinguishing them doesn't move, but at the same time, it is permeable because ideas and techniques do move between the two disciplines even if—and probably because—Catherine doesn't recognize this movement. While we might see this as a failure on Catherine's part to recognize the conventions of English, instead I suggest it is more interesting to consider how Catherine's past experience flows into this English context almost unconsciously.

Like Catherine, Sally had a similar phenomenon with writing practices filtering into English from another discipline. In this case, she drew on knowledge from sociology, which she identified as one of her favorite topics during her first year of study at a smaller liberal arts college in the area. She describes the impact of this class:

I had so much trust in myself that I gained from my sociology teacher, and basically increasing my self-confidence, I was like, yeah, well even if this doesn't seem to relate to literacy even though it has racial literacy to it, I might as well find some connection and therefore bridge what I'm trying to learn in English and what I'm trying to achieve in life. Which is something sociological.

Sally identifies the two disciplines as distinct with a discursive boundary separating the two—they are different subjects in Sally's mind after all. However, that doesn't prevent Sally from making connections that allow her writing interests, experiences, and skills permeate from sociology into English.

When I asked Sally to describe her first major writing assignment and compare it with writing she'd done in the past, she explains, "Um, I think it's pretty similar. I mean, I haven't done anything related to racism. I mean I've had papers in sociology about racism, but I mean, research aspects. Like it's pretty general. It's pretty generic. I don't think I'll have any problem with that." Sally means she's not done any writing on racism for this class or other English classes. However, she has written on that topic for sociology. At the same time, Sally does identify and recognize the difference between the discourses, but that boundary between the two allows for movement.

While we generally see movement between disciplines as a positive thing because we're trying to foster transfer and transfer-positive dispositions, sometimes it can create challenges. This occurred in Banana's experience in relation to the service component of her FYC course. As I mentioned above, almost universally, students saw the two contexts as separate, unrelated things, and therefore a fairly rigid boundary was marked between the two. Banana explains, "I kind of feel like they're separate things most of the time because coming to the classroom, I feel like it's reading and writing time. It's discussion time. When, the service component...sometimes I forget that the service component is for this English class. Even though, like, the topics we discuss mainly revolves around doing service, but I don't really feel that connection very much." Clearly for Banana a boundary exists between the English class and

the service component. This is no surprise. There is a physical distance between the two, and even though the topics for the class related to literacy, not much time was spent in class discussing how the readings related to each student's experience at the service site. This boundary became increasingly impermeable throughout the term, but early on, for Banana at least, some evidence of movement between the two contexts appears, and in this case the movement is not desired. For instance, in Banana's second major paper, in which she was asked to prepare a letter for the service site making recommendations for changes they might make to their program, an interesting thing occurs. In her cover letter, she describes this piece as a good example for the outcome that focuses on rhetorical awareness because in revision she made major changes that reflected the specific needs of the audience. I'm going to cite this passage at length here:

In terms of formality, one major mistake that we did was that we overlooked this fact of writing to a specific audience and mistakenly wrote "The organization that we find is Seattle Family Resource Center". This is inappropriate because we are writing to them and we should not have addressed them as a third-person, and like our instructor commented, "This proposal is written to them, so this would make no sense". Therefore, as a revision, we change that sentence by saying that "Since your organization, the Seattle Family Resource Center (FRC), is an organization of families from different communities trying to build community connection,..." and continue on to talk about how our research connects to the objectives of the organization.

In terms of convincement, we make sure that the organization understand our evidence by always asserting that our study will be supported by first-hand interaction with the students of CISC, namely observing and asking questions.

Banana recognizes a discursive boundary between the two contexts and therefore identifies formal and argumentative differences between the discourses and the demands of the audiences. This boundary remains rigid throughout the quarter. However, turning to Banana's paper, it is clear that some movement occurred across this boundary. In her revised version, Banana made the most changes to the introduction paragraphs, using second person to directly addressing the people in the organization. At the same time, however, the paper clearly has major elements of "academic" writing that permeated across the discursive boundary. First, this paper includes a works cited page, something a letter to an organization likely wouldn't include. This can probably be explained by the fact that Banana was writing for a class. More interesting is that between the more discursively appropriate introduction and conclusion, this paper contains an embedded five paragraph essay. I've included this paper here.

Banana  
Charlotte  
Date

### **Major Paper 2**

Dear, Ms. XXXX,

As a volunteer for the afterschool program offered at your organization, I have been exposed to many new experiences in terms of how to communicate with young students and help them academically. I have also noticed how the administration has done a good job in attending the students' academic needs as well as providing a community-based service program that is well acquainted with the students who are mostly from immigrant families. Your administration has conducted well thought-out and impressive lesson plans for the students that range from the age of 7 to 12 years old to follow throughout their three-hour afterschool session. Having been a volunteer at the 1<sup>st</sup> and 2<sup>nd</sup> grade classroom for a little over two months at this organization, I have been given the opportunity to connect with these young students and monitor their academic progress as well

as their wellbeing. I have also had the chance to carry out a research on the students' literacy and bilingualism with other volunteers in order to find out more about how their literacy affects them socially and academically.

One of my responsibilities as a volunteer for this program is to ensure that their school homework is completed and also assist them in doing so. Based on my encounters with these students during homework time, I have noticed various behaviors and characters projected by these students whenever it is time to do homework. In my classroom, the classroom coordinator will give a total of 30 to 40 minutes for homework time with breaks for readings or playtime in between. If a student does not have homework for that day, he or she can choose from the many worksheets that are prepared by the coordinator. Since the coordinator always puts up the chronological time plan for the day, students will usually notice and acknowledge when homework time is due. Some students will not hesitate to take out their homework and quickly work on it, and some students will only work on their homework when asked. However, there are also students who, more often than not, will deny having any homework, and there are also those who refuse to do their homework even when asked or given some little reward such as extra free time.

I believe that your administration has given sufficient attention and effective academic plans for these students in this very helpful community-based service environment but I would like to suggest one interactive way to help tackle the struggle students might have in completing their homework alongside encouraging them to do their homework without seeing it as a burden. I would like to suggest for each classroom to have the "Star Points" reward system which would motivate students to complete their homework and engage in a healthy competition between their peers. As a clarification, I do not wish to condone any negative competition or to put any struggling students down but my intention is to ensure that these students would feel like doing homework and worksheets is fun and not just writing words and numbers on paper. I propose that coordinators give equal number of star points to students who work on their homework and every other two weeks, the student with the most star point will receive a reward such as a big packet of candies or snacks. If each student accumulate the same number of star points, then everybody would receive a packet of candies, snacks or perhaps other small tokens every month. If the coordinator wishes to make it a merrier occasion, the coordinator and the volunteers can hold a small celebration for everyone at the last 10 minutes of class during the last week of the month and might also add a certificate of achievement for these students.

One of the main reasons I believe this simple yet effective reward system is important is because of the fact that most of the students at this organization are from immigrant families and so they are also bilingual. Based on the study my peers and I carried out on literacy communication of these young students at this organization not too long ago, it is found that they mostly only speak Chinese (Cantonese and/or Mandarin) at home. Having bilingualism is important for cultural respect and it also provides important communication skills for these

young students in the long run. Nevertheless, this causes a barrier of communication between the students and their parents on their academic needs. This can clearly be seen when some of the students who receive letters from school would ask for help from coordinators or volunteers to explain what the letters mean so that they could do the same to their parents at home. Some of them also claim that they do not do homework at home. Therefore, I believe it is imperative to reinforce the importance of completing their homework at the afterschool program where there are English-speaking coordinators and volunteers present to aid them.

Another reason as to why I believe this system could work in encouraging students to do their homework is because celebration of the smallest behavior or achievements can motivate them. Research shows that children's positive behaviors are motivated by external factors such as receiving rewards or having somebody acknowledging their positive behavior (Leimgruber et al. 6). Instead of just celebrating and acknowledging their efforts, it is also vital that the class coordinators and volunteers always remind the students of the importance and benefits of practicing what they learn at school and teach them the sense of responsibility. This is so that these students learn the benefits of studying and not confuse this with just making rewards the only goal of doing homework. Besides that, this simple reward system will not be costly and is up to each class coordinator on how to hold a small celebration of good behaviors and efforts done on homework and worksheets. This culture of not only verbally acknowledging their work but also presenting them tokens of appreciation can further motivate these young students while also making the communication between the students and the coordinators and volunteers more interactive and different. However, the communication of these students with their parents at home also contribute as a factor as to why I think it is important that these students need to be positively reinforced in order to focus on their academics at this organization.

Since the afterschool program is a program that has classrooms full of students, peers also play a big part in these young students' academic development besides the coordinators and volunteers. From my observation, peers often heavily influence the decisions that these students make. For instance, if a student decides to stop doing homework and starts doing other things instead, his or her friends would usually ask them what they're doing and join them. They also tend to agree with any invitation from their friends or help them when asked. This vulnerable behavior shows how these students can be susceptible to their friends' achievements and that they would most probably want to gain the same results that their friends achieved. Brandt mentions how sponsors are any abstract or concrete agencies who provide incentives and steer the way for these students to gain literacy (Brandt 166-167). Consequently, peers fit the description of a literacy sponsor so well because they are the motivational trigger for these students in achieving academic literacy by setting exemplary behaviors that these students tend to want to copy. Thus, by using this simple reinforcement "star

points” method, I believe students would be more encouraged to work on their homework by following the course steered by their friends’ achievements.

In conclusion, I hope the administration of CISC would consider my proposal to establish this reinforcement design system that would not only help to incorporate a sense of responsibility and motivation for these students to work on their academic development but also encourage them to be at their best behavior. Apart from that, this financially affordable system also invites a culture of celebration and appreciation that could also drive and push these students in working hard for them to achieve success in the long run.

Best,

Banana

Volunteer

#### **Works Cited**

Leimgruber, Kristin L., et al. "Young Children Are More Generous When Others Are Aware Of Their Actions." *Plos ONE* 7.10 (2012): 1-8. *Academic Search Complete*. Web. 25 May 2015

Brandt, Deborah. "Sponsors of Literacy." (1998): 165-173. Document.

In paragraphs 3-8, Banana incorporates all of the standard features of a five paragraph essay including an introduction, three supporting claims and a conclusion. This suggests that even though Banana recognizes a boundary between the service discourse and the academic discourse, writing strategies, knowledge, and skill permeates across this boundary. In this case, Banana recognizes appropriately the differences of the contexts in her cover letter reflection, but despite her conscious effort, this undesired transfer occurs.

IP boundaries are interesting because they remain relatively fixed, but they don’t constrain action and they allow flow of ideas, knowledge, skills, and other resources to travel between discrete spaces. I would suggest that these kinds of boundaries are important for transfer as we’ve seen in in the past, particularly low-road transfer (Perkins & Salomon, 1992). In the final section in this chapter, I will turn to the last kind of boundary I have identified in this study: flexible and permeable boundaries.

### **Flexible-Permeable Boundaries**

As I embarked on this study, I believed that more flexibility and more movement would generally be very positive for writing and acquisition of writing skills. After all, many of the transfer studies before this have praised “boundary-crossers” and students with rhetorical flexibility (“Elon Statement on Writing Transfer,” 2013; Nowacek, 2011; Reiff & Bawarshi, 2011). Identifying flexible and permeable (FP) boundaries seemed something that would be very positive for transfer. However, as the data analysis repeatedly revealed, things were a bit more complicated than that. FP boundaries are boundaries that change over time and that allow for ideas, knowledge, skills, and rhetorical force to move across them. Probably the most important example of this comes from Banana and the boundary that defines writing. Banana entered class with very positive feelings about writing. She’d written in her school newsletter in high school and had spent much of her time writing stories and other “funny stuff.” This was interesting because in the context, English was a second language and Banana experienced other students “[thinking], oh, you speak English. You’re just pretending. You’re just boasting. You’re just being arrogant. You’re just showing off. But somehow, by my approach they kind of accept me. They don’t judge me. They kind of see this is fun. You know. Like English is fun.”

Then over the course of the quarter, Banana’s understanding of writing gradually changed. About halfway through the quarter, she became quite confused with the writing. She was unsure as to what the assignments were asking her to do or if she was doing the correct thing. She described the first major paper as “bad” and said, “I don’t know if I’m making sense or if I’m doing the right thing. And it was full of b.s.” At this point in the quarter, Banana was realizing

that the kind of writing she enjoyed in high school wouldn't effectively respond to the prompts in this FYC class. Towards the end of the quarter, however, she begins to understand the demands of the rhetorical situations. She describes this process at length in our second to last interview:

It's like there are phases. Kind of. Like the first phase, I was pretty, like, I don't know what I'm doing. I'm just writing jibberish. And everything was totally out of place. And the, the second phase, I guess through the middle of the quarter, I kind of see how it's going. But then it's hard for me to like gather evidence and like try to make sense out of my point and the evidence and how to put them into conversation, like Charlotte said. And that's where I start to b.s. some stuff. And then through the end, I kind of already see the...I don't know how to explain this but, I see the...what Charlotte wants, I guess. Like how to write. Maybe it's just me, maybe I'm feeling more comfortable in like pouring out my ideas and starting to play with words, and I'm not very confused with myself. And I start, and I actually know what I'm writing about.

In this response, Banana demonstrates clearly how her writing progressed throughout the term. At the beginning of the quarter, she was comfortable with writing as she'd identified it in high school. The boundary was clearly defined and she only needed to play with words and tell stories. Then as she progressed throughout the quarter, that boundary shifted to redefine what writing could be. During the middle part of the quarter, Banana struggled because her previously solid understanding of writing had been ruptured. During this phase, she describes a boundary between high school writing (fun and funny) and college writing (more serious and

formal). However, this boundary is permeable because as she gradually becomes more comfortable with the writing she encounters in FYC, she starts taking up the skills and knowledge that she'd developed in high school. In other words, the strategy of making jokes and playing with words moves across the boundary of the two kinds of writing. Finally, by the end of the quarter, Banana sees writing not as two separate things, but one larger field that includes the writing she did in high school and the writing she was doing in college.

Jan had a similar experience; however, instead of interacting with a FP boundary between types of writing, he interacted with one between FYC and a Political Science class he was concurrently taking and the field of business, which is what he hoped to major in. Jan describes an assignment for that Political Science class in which he had to write an opening statement for a speech on compensation for student athletes. I want to cite this section of interview at length, because I think it is significant. In response to my question about how the current writing assignment is similar or different from past writing assignments, Jan said, "It's completely different, but I feel like [sigh] I feel like my writing has actually gotten progressively a lot better."

"How so?"

"Well, like I mentioned, I'm in a Political Science class and we're doing argumentation and basically that's the art of rhetoric, how you're gonna present, and we had to write an assignment, actually...can I give you my assignment and have you read it, because it was basically write an opening statement in like a mini speech about like a university topic, and so I wrote about student athletes, how they're not being compensated, but I wrote it, I wrote it in a fashion where I presented both pathos, logos...sorry, all three of them..."

“Yeah, yeah, yeah, sure.”

“...and the way I wrote it, I just like, I got my grade back and I got a, you know, a pretty good grade on it, and I wasn't expecting it because I was such a poor writer, especially in a rhetoric sort of way. And so, but I got it back and she said it was really, really good, so I don't know if it was just this basic, just talking in English has gotten me to change, because in the poli sci class we don't talk much about it. We talk about the art of argumentation, the concepts of it, we went over pathos, logos...but we didn't go into such depth as we did in English and so, and I'm really happy...”

“maybe it's more content focused?”

“Yeah yeah, I'm, it's like it's weird...English is completely content focused...sorry...[corrects self]”

“Poli sci?”

“Yeah, it's more content focused, and Poli sci is more application.”

“Oh, okay.”

“So, I really liked, it's a great, um, structural combination, so”

“I'd be really interested in seeing”

“I'll bring it in”

“That'd be cool”

“Um, awesome. That's exciting, and that's exciting to hear you're seeing these connections between classes.”

“It could be, it could be just me thinking things, but I personally have felt like, I've never written a paper where I've gotten a hundred on it...”

“okay”

“ever”<sup>12</sup>

“okay”

“And I don't know if it's just the TA or whatever, but I felt pretty good writing it and so when I turned it in, we gave the speeches in class and I got positive responses from the class, and so I don't know. Hopefully it's not a fluke.”

I include this conversation at length because it illustrates the complex boundary that is being marked between the English and Political Science classes. Jan clearly sees and articulates a distinction between the two classes and their related fields, but at the same time, he can see where the boundaries of Political Science overlap into English—specifically in regards to rhetorical strategies. Instead of these strategies filtering across, Jan recognizes how there might be overlap and they might belong to both fields simultaneously. In other words, Jan is not saying that rhetorical strategies are “English” skills that he migrated or that permeated into Political Science. Nor does the distinction between the two fields disappear—Jan still recognizes Political Science and English as distinct disciplines even if the boundary between the two flexes a little bit. What’s more, Jan’s audience responded positively giving him the highest grade he’d ever received on a paper for that class. This also shifts Jan’s relationship to writing as something at which he saw himself as “poor” to something that he could do and produce “really, really good” results according to someone he saw as an authority figure (the TA). I suggest this boundary work produces FP boundaries instead of IP boundaries because what had initially seemed to be two distinct disciplines to Jan ended up merging or overlapping on the rhetorical

---

<sup>12</sup> He said this with great emphasis.

strategies. Jan doesn't see these as "English" skills, per say, but rather sees them as writing skills that could equally be part of and relevant to other disciplines besides English.

Unfortunately, I was unable to see the exact mechanics for this movement since I rely on Jan's reporting. In a future study, it would be useful to observe by some means a student doing this kind of work in real time.

Lisa also encountered FP boundaries in the discursive field on the second major project. For this assignment, she was able to select a topic that she was highly interested and invested in. She did research and made an argument on how schools could get more girls interested in STEM fields. This involved a number of boundaries and the assignment gave Lisa a way to make those boundaries overlap in research. For instance, Lisa had the memory and history of growing up in a family that supported her interest in STEM. She also had the experience in an applied physics internship in which she was treated as a less valuable partner compared to her male counterpart, who had less experience. She also had disciplinary experience through her TA position in physics at the university and working on the Formula car. All of these experiences she connected to research on women in STEM and the strategies she had learned early on in the class in the context of this assignment. Negotiating all of these ideas and regions of space involved complex boundary marking work that drew and redrew boundary lines. Ultimately, the project was successful, and as I mention above, she left class feeling more confident about her writing and more prepared to encounter future writing contexts. This suggests that Lisa's identity boundary was flexible and permeable as well because we can see throughout the term how her identity—specifically her ability to see herself as a writer—moves drastically from hating writing to feeling confident in it. At the same time, she is open to taking up suggestions

and advice from Gorgias and her peers. I would argue that the fact that her identity boundary is permeable allowed it to be flexible enough to allow her to gain confidence in herself as a writer. Perhaps her initial lack of confidence as a writer allowed her identity in the writing class to be more flexible and more permeable so that she was more able to take up material from the class and incorporate it into her identity and change that writerly identity throughout the quarter. I also suspect that since Lisa's identity boundary is flexible and permeable, it allows her to encounter an FI boundary that defines writing. In other words, throughout the term she has a clear sense of what writing is and that does constrain how she performs writing tasks, but that sense also changes over time because she allows herself to take up the learning available in the class.

I want to conclude this section by talking about Sally. I mentioned earlier that she was also inclined to encounter II boundaries in regard to the class and in the field of identities. However, in terms of ideas, Sally encounters generally FP discursive boundaries. For instance, late in the term, I asked Sally about revision: "How are you finding the feedback is affecting your revision? You talked about more concrete detail; are you seeing it affecting your revision in other ways?"

Charlotte's feedback about adding concrete details is important because early on, Sally tended to make fairly general arguments lacking substantial detail or specifics. This suggests that the boundaries marked in her writing were permeable and flexible because they lacked the specifics to make them fixed and solid. Sally replied to my question, "Um, I don't think so. I think I just follow Charlotte's advice as closely as possible. I mean sometimes I don't really want to follow her advice because I thought that the part was just fine, but there is that pressure,

you know. What if she's really right? What if I should really adjust it and stuff? Yeah, so I'm still pondering about that, like my choices of what I want to revise."

Sally struggles with revision somewhat because the boundaries marked in her writing are so flexible and permeable. She has some sense of what she wants to say and how she wants to argue, at the same time, these discursive boundaries do not resist the "pressure" exerted on them by Charlotte's feedback. As a result, Sally does make some fairly substantial changes in her writing. Notably, in the third short assignment Charlotte comments, "I definitely think you're overstating the case in terms of Brandt's view on individual motivation. The more nuanced point you align with (that there are barriers to sponsorship created technologically, environmentally, socially, etc.) is actually a much clearer articulation of her view." This particular comment caused a major shift in Sally's thinking for her first major paper, which had to be on literacy drawing on readings from the class, her own personal experience, and experience volunteering at the service site. She initially was thinking about writing about personal motivation and its relationship to literacy. After she received Charlotte's comment, she explains that she hasn't actually formed an opinion for the major paper. I asked, "That's something you expect to form later on?"

"Later on. I don't actually have my topic yet because the first topic I chose was really broad."

"What was your first topic?"

"Personal motivation."

The boundaries defining Sally's paper topic are permeable and this comment from Charlotte easily affects her thinking. As a result, she struggles somewhat to re-establish the topic of her paper and how she might approach it. This was not uncommon in Sally's writing

and encounters with ideas in the class. Generally the discursive boundaries she encountered were flexible and permeable because she rarely articulated a strong stance and was easily swayed, particularly by Charlotte. This is interesting because despite this, Sally does understand the importance of sometimes resisting the influence of other people. In regards to her dislike for the group project, she explains, "I think a bit of it is that I've grown tired of really assertive, or bossy people, basically. Because I don't want it to be just me fighting them...they say they have their own shared part, but in the end they want to be the CEO of our whole group." In other words, she's resistant to her peers exerting undue force over the work of the group. At the same time, she also sees the challenge of relying too heavily on the influence of reviewer comments on writing. She says, "you start to build yourself as a writer when you actually start to critique on your own rather than relying on other people's comments." These suggest that Sally values boundaries that provide her space to do what she wants to do, but at the same time, in regards to the instructor, the boundaries are generally unable to resist the force that a teacher's comments exert.

I recognize the limitation of this taxonomy of boundary types both regarding their location in a particular field and their permeability and flexibility. Since these boundaries are iteratively remarked through moment to moment interactions, the boundaries fit along a spectrum rather than in a single category. That being said, being able to differentiate the specific location and property of each boundary that fosters or prevents learning and transfer is extremely useful. In the next chapter, I will expand on this and argue how these different boundaries affect micro-transfer and their implications to teaching writing. I will also discuss the limitations to this study and implications for future research.



## **Chapter 5. Beyond the Boundaries of Transfer: Limitations and Implications for Teaching and Research**

“They were all smart kids to begin with, so it did not really prove anything.”

Throughout this dissertation, I have argued that transfer is central to Writing Studies insofar as the class that takes up the majority of our work, FYC, is predicated on the notion that instructional intervention will improve student performance in future contexts. However, generally we have seen transfer as a macro-phenomenon that occurs over long periods of time and between different contexts. I suggest that when we look more closely to the temporal level where students live and experience learning—the moment-to-moment level of lived experience—we see much more complex interactions in which each moments’ configurations of boundaries that define the material and discursive world constrain and afford the next moments’ boundary-work. These micro-transfers accumulate over time and become what we call “transfer.” By focusing on the micro, we are in a better position to observe the phenomena in which we are interested: learning, rhetoric, writing, and uptake, to name a few. This study focused on the micro and as a result identified more clearly the kinds of boundary-work that are important to learning and transfer. Based on analysis of the data in Chapter 3, boundaries fall generally in one of three fields: the spatio-temporal field, the discursive field, and the identity field. The spatio-temporal field is the space of time and matter. Walls, doors, the surfaces of material bodies, and distances are all examples of spatio-temporal boundaries. These boundaries are significant because they prevent or allow movement between discrete times and spaces. For instance, the boundary constituted between the English 121 classroom and service learning sites by the material distance between them made it difficult for students to identify connections between the two unless they were explicitly prompted to do so by

Charlotte. Likewise, if an instructor chooses to close the door of their classroom at a certain time and not allow students to enter after that time, the door constitutes an inflexible and impermeable spatio-temporal boundary that keeps students in or out depending on when they arrived.

Discursive boundaries are more apparent in this study and perhaps more important for conscious learning, or at least this is what the focal participants reported. Further, for spatio-temporal boundaries to be “known” they seem to require corresponding discursive boundaries. These boundaries are those which occur in discourse that individuate known things. For instance, the boundary that differentiates English from Political Science, including in each a set of skills and knowledge that correspond to the field, is a discursive boundary. Likewise, ideas like “writing” or “revision” are identified by discursive boundaries. These boundaries constrain what counts as “writing” or “revision” and what does not. For instance, to Jan, revision meant fixing mistakes, and even though the course required him to do major, substantive revisions—those that we appreciate in Writing Studies—he still never changes what he identifies as revision. Instead, he marks a new boundary defining “full revision,” which is distinct from “revision,” to allow him to account for the actions he performs in class. Likewise, the discursive boundary patterned on the academic essay or five-paragraph essay genre influenced a number of focal participant students writing in English 121, making their letters seem more like academic essays than letters. In a future study, it would be useful to investigate the relationship between genres and boundary-work. Clearly, genres have an effect on discursive and likely material boundaries.

Even though they span the discursive and spatio-temporal field, identity boundaries deserve a class of their own. Identity boundaries are those that individuate people in a spatio-temporal and discursive context. I am defined by the boundary that separates me from the rest of the world. This study illustrates the importance of identity boundaries in how students are positioned in a class. I use the passive voice here because it is not simply a matter of students positioning themselves, but rather their position and identity is defined by interactions. For instance, Sally struggled to engage with the class in part because she encountered relatively impermeable identity boundaries identifying herself, the other students, and Charlotte. These identity boundaries are interactional because it was the interaction between Sally and the other people that constituted the boundaries. Banana encountered Charlotte in a very different way and so they encountered very different identity boundaries defining the essentially same person. Further research into identity boundaries that incorporates intersectionality and difference would be quite useful. I suspect that that research could start by considering these two theoretical perspectives alongside the boundary-work presented here (Crenshaw, 1989, 1991; Kerschbaum, 2015; Phoenix & Pattynama, 2006).

Across these fields, the boundaries identified through this study appeared to fall across a spectrum based on their flexibility and permeability. By flexibility, as I described in Chapter 4, I mean the boundary's movement over time. Lisa encountered a discursive boundary that defined writing that moved gradually throughout the quarter as she became more comfortable with it and as it moved to encompass skills that were more relevant to her work in STEM. Other boundaries were inflexible like the one Jan encountered defining revision. It was so inflexible that to account for the contradictions in his work in what I would call revision, he defined an

entirely new skill rather than shift the boundary of revision. Permeability requires much more research, but I am using it to describe the way in which a boundary prevents movement. For instance, Banana's letter to the organization she volunteered for provides an example of a permeable discursive boundary. She saw the writing task as identified by the discursive boundary of the "letter." She even recognizes in her cover letter that her first draft was insufficiently "letter-like." Despite recognizing the letter, the writing contains an embedded five paragraph essay framed by a letter opener and closer. I suggest that the practice of writing a five paragraph essay permeated the discursive boundary of the letter, which means this boundary was unable to constrain the movement of the academic writing strategies into the paper. An impermeable boundary would be like the "dungeon-like" classroom that Jan encountered. When the door was closed two minutes before the start of the class, nobody could cross the spatio-temporal boundary. Likewise, Sally established a fairly impermeable identity boundary preventing her from connecting with the other students in her class or with Charlotte for the first several weeks of the quarter.

These findings are fascinating and illustrate the value of studying boundary-work in this fashion. However, there have been limitations to this study that encourage me to continue this work and further expand this theoretical perspective. Before I discuss the limitations and potential future studies, I want to spend some time discussing micro-transfer, which was what I was hoping to encounter when I embarked on this research. Micro-transfer is the phenomenon I set out to observe nearly at the outset of this study. As I discussed in earlier chapters, I am concerned that transfer studies, with perhaps the exception of Nowacek's (2011) focus on transfer as a large scale phenomenon, do not sufficiently account for the day-to-day or

moment-to-moment interactions that students live through that researchers then can see over the longitudinal term of a study as “transfer.” However, I quickly found as I looked at the data that even with weekly interviews, daily classroom observations, and collecting all writing assignments, my focus was not close enough. That being said, I do believe that the data suggests the importance of considering micro-transfer and further pursuing this line of inquiry in future studies, which I will outline later in this chapter. Micro-transfer, I argue, is the moment-to-moment shifting of boundaries that allows people to apply past knowledge and skills to the present context. This means that micro-transfer appears as movements of and permeations across various boundaries. These are complex interactions that occur continually as people navigate the boundary-work that iteratively brings the world into being (Barad, 2007). In other words, in any moment, students interact with the material, discursive, and identity fields and the various boundaries that give those fields definition. Each interaction is afforded and constrained by the past configurations of those fields, which in turn reconfigure those configurations. For instance, in the event in which Gorgias shamed the student for playing on his computer rather than participating in group discussion, a series of micro-transfers appear to have occurred that had significant results. First, the spatio-temporal field was marked in part by the positions of student bodies as they sat in small groups, which allowed some students to have their backs to the front of the class, meaning students didn’t have to focus on the instructor. The discursive field was marked in part by the notion of small-group discussions, which in my experience means for some students discussing the topic and for others free time. Probably, and based on his actions, this student understood the discursive boundary of small-group discussion as the latter. His understanding of this discursive boundary meant that to this

student it was appropriate to play on his computer rather than participate in the discussion. This act of playing on the computer created an identity boundary that Gorgias observed and recognized as a student off task. As a result, Gorgias felt an exigency based on his identity boundary as an instructor (i.e. one of the things an instructor does is keep students on task) conflicting with the identity and discursive boundaries that identified the student and the notion of an off-task student. Gorgias said so all the class could hear it, "Hey! Don't dick around with your computer." This utterance was defined by discursive boundaries that were recognized by the class and student in a way that modified the student's identity boundary in a way that shamed him. In response, this force exerted by Gorgias' utterance marked boundaries that modified the identity boundary of the student in a way that shamed him due to the publicness of the comment. Jan and Michael both reported recognizing this comment as a shaming comment and did both think it was "funny" and laughed a bit at the student's expense.

The student immediately responded by modifying the spatio-temporal element of his identity boundary by hunching his shoulders. Then after class ended he created a more impermeable boundary between himself and the class by not attending for several days. He did eventually break down this boundary and come back to class. However, what's important to notice here is that we have a series of interactions, uptakes, and boundary-work that defines the student, the class, and Gorgias in different positions and relationships that result in the student missing several days of material. I suspect that this series of interactions and the marking and remarking of boundary lines had an impact on the student's learning, and is worth investigating further. I suggest that this phenomenon might be considered micro-transfer because like transfer, but on a moment-to-moment scale, it involves the effects of past

experience on present and future contexts. Each interaction and each instance of boundary-work in this example involves memories of the configurations on past boundaries. This includes the spatio-temporal boundaries of the classroom and the objects in the classroom. It also includes the discursive boundaries that define things like “group work,” what a class should look like, and what the relationship between instructors and students ought to be. Finally, since identities exist and participate in these interactions, identity boundaries are involved in these interactions. All of these boundaries affect the present interaction with significant implications for how students might learn or how people might interact. Additionally, I suspect that transfer—or the more large-scale transitions between contexts and the application of knowledge and skills therein—depends and really involves a series of micro-transfers that accumulate producing student dispositions towards transfer. A series of micro-transfer also likely affects what knowledge and skills transfer and how.

In what follows, I will develop further the theory of micro-transfer and illustrate its potential as a theoretical perspective. From there, I will move on to discuss potential paths for future research to better delineate the boundary taxonomy that appears in the previous chapters and to better understand micro-transfer. Additionally, I will briefly discuss the implications to teaching; however, many of the implications will be to simply continue what we’re already doing.

### **Micro-Transfer or What Happens When We Aren’t Looking**

In Chapters 3 and 4, I discussed boundary-work at length and established a sort of taxonomy for boundaries. In this analysis, I started glimpsing evidence of what I am calling micro-transfer, and here I turn to that more directly. I include this section in this chapter that is

supposed to be focused on implications, limitations, and paths of future research because a theory of micro-transfer is one of the major implications of this study in addition to what I will discuss below about boundary-work. To discuss this theory of micro-transfer, I return to three examples from the data that I want to discuss further. The phenomenon appeared as I started looking at boundaries across time. The most vivid instance appears in Catherine's encounter with the first sequence of English 131, which asked students to conduct a debate on some controversial or divisive issue like the Common Core, the Keystone XL Pipeline, or gun control to name a few. Catherine was tasked with debating the Common Core curriculum. I discussed this briefly in previous chapters; however, as I worked through this section of the data, and even as I was drafting this document, I found Catherine's experience with this assignment sequence falling into a number of categories of boundaries. As I revised the last two chapters, I noticed that I had written about this in both the FP (flexible-permeable) boundary section and the II (inflexible-impermeable) boundary section. This gave me pause until I realized what was happening was micro-transfer as Catherine encountered a discursive boundary that became increasingly inflexible and impermeable. Beyond illustrating micro-transfer, this example illustrates a student learning about a topic and becoming increasingly comfortable with its discursive boundary.

There are two major discursive boundaries at work here that relate to the instance of micro-transfer. First, there is the discursive boundary that defines the assignment—specifically a generic boundary—which was unfamiliar to Catherine who reported never having written a letter to the editor or participated in a debate before. The second discursive boundary was that defining the Common Core itself. The first discursive boundary was initially confusing to

Catherine as the prompt defining it asked her and her partner to conduct a debate on the statement “the common core and other national education programs should be gotten rid of.” The confusion stemmed from the fact that the affirmative stance on this statement is against the Common Core. Catherine misunderstood her stance, knowing that she would be arguing for the Common Core, she didn’t realize she was supposed to take the negative side of the debate. As a result, she realized at 10:30PM that she needed to complete a rebuttal that night. This is an example of a flexible discursive boundary because it shifts as she recognizes her error. It would be interesting in future studies to attempt to see what mechanism exactly caused this recognition. As this boundary shifts, Catherine experiences a micro-transfer, or a re-constitution of the discursive boundary defining the assignment. This boundary ends up being impermeable because it does effectively constrain her writing to a particular genre and stance on the topic.

The second discursive boundary also shifts considerably. Initially, she explains being opposed to the Common Core because it implements standardized tests and overemphasizes some subjects allowing others to be cut. As Catherine conducted more research on the Common Core through the process of the assignment she explains, “[I] didn’t really have a big opinion on it, but was just like, ‘Oh, standardized testing. I don’t agree with the Common Core.’” This lack of opinion or limited opinion suggests a permeable boundary because it does not prevent her from taking up alternative ideas about the Common Core and having those ideas incorporate into the idea of the Common Core defined by its discursive boundary. She continues this statement saying, “I was reading about the Common Core, and I was like, I kind of agree with this.” In other words, the research interacts with her understanding of the

Common Core, expanding it, and causing her to change her perspective on it. I suspect that this permeability and flexibility is possible in part because Catherine didn't start with a particularly strong opinion on the Common Core, and she didn't know very much about it, so the boundary was indistinctly defined.

Gradually, as she conducts research, the discursive boundary defining the Common Core becomes more inflexible and more impermeable as Catherine develops a greater understanding of it and a stronger opinion about it. This increasing definition in the boundary appears in the clarity of Catherine's language discussing it. She explains that the standards are not just standardized tests but rather are "a consistent set of guidelines for what students should know in mathematics and language arts from kindergarten to 12<sup>th</sup> grade, so a student taught in Mississippi will learn the same core areas as a student from Washington State." I suggest that the fact that Catherine's increasingly concrete language is particularly important in this micro-transfer that shifts her understanding of the Common Core from the one in the dominant public discourse—at the time, most of the public conversation about the standards was about the problems associated with standardized testing that is part of the Common Core—to a more informed understanding based on reading into the Common Core material itself that appears in her second paper of the first sequence. In this micro-transfer, the boundary becomes increasingly inflexible and impermeable while at the same time her language about the Common Core becomes more precise and she reports being able to write more rapidly about this topic. This increased writing speed and fluency is likely because instead of having to figure out the discursive boundary, Catherine has a memory of it and therefore can mark it in the same place. I would hypothesize that boundary-work that involves less effort and can occur

more rapidly illustrates not only familiarity with the topic, but also more stable and impermeable the boundary. Catherine describes the process by which she became familiar with the topic. She explains, "It's easier to write about the Common Core after I did all my research and stuff, but doing the initial one where I didn't know anything...it just makes it more difficult. But by the end of the debate, it felt like it was a lot easier because I knew all the language already." The notion of knowing the language is crucial in understanding the boundary-work that's going on, and more specifically the gradual ossifying of the boundaries. Post-structuralism aside, a language might be thought of as a framework or template for boundary-work. In other words, languages require stability to make them mutually comprehensible even if that stability comes from gradual "sedimentation" (Lu M.-Z & Horner B, 2013). This framework, I would argue, or the language that describes a particular topic might be seen as a set of discursive boundaries. This fits again with Dylan Dryer's (2016) discussion of the importance for establishing a language to describe uptake. As Catherine learns the language of the Common Core, the discursive boundary defining it gradually becomes more stable and less permeable, and as a result, her opinions about the standards grow stronger.

The shifts that are occurring here in the boundaries defining the Common Core and the assignment are interesting examples of micro-transfer, particularly since in interviews Catherine is able to clearly articulate her thinking and the process she went through in doing the assignments, and since this interview data is further supported by corresponding changes in her writing on the topic (i.e. it becomes more specific). I see micro-transfer, again, as part of boundary-work, and specifically the interactions that occur across iterations of boundary-markings that influence the way each new boundary is redrawn. The permeability and flexibility

of the boundary defining the Common Core, for instance, allows Catherine to be more open to new information about it and to changing her mind about it. However, as a self-identified “opinionated” person, Catherine perhaps has a tendency to mark increasingly firm boundaries as she learns more about a topic and becomes more confident about her knowledge of it. In the data, it is clear that the discursive boundary that Catherine encounters defining the Common Core from the beginning of English 131 to our final discussion of it a few weeks later illustrates micro-transfers that involve less and less movement as that discursive boundary becomes increasingly inflexible and impermeable. While transfer research has taught us that flexibility and agility are crucial for effective transfer, which in turn some like King Beach (1999) equate to learning, this example illustrates that learning—as Catherine does about the Common Core— involves a series of micro-transfers through which new information is incorporated into the object of study defined by its discursive boundary, which in turn becomes increasingly impermeable and inflexible.

I must admit, I see something counterintuitive in this. Learning, which benefits from firm boundaries, results in decreasing flexibility and permeability of some of those very boundaries. In other words, it seems that if we see learning as a series of micro-transfers that gradually ossify boundaries defining what we’re learning, then—all clichés about old dogs and new tricks aside—learning might actually hinder future learning when and insofar as it results in increasingly impermeable and inflexible discursive boundaries defining knowledge. I say this with great uncertainty, but I do believe that this is an important target for future research on micro-transfer. It is clear, however, that as micro-transfers occur it is crucial to consider what kinds of boundaries are being marked and how those boundaries might affect future learning.

While this example illustrates micro-transfers resulting in increasingly inflexible and impermeable boundaries that contain well-defined knowledge, micro-transfer does not always move in this direction. Claire provides us with another interesting example of micro-transfer. Claire was a student in English 121, and she encountered a discursive boundary or set of boundaries identifying the content of readings from Deborah Brandt and Neil Leroux. In my interview of Claire during the second-to-last week of the quarter, she describes the second assignment that asked students to put the two authors in conversation. While she isn't able to articulate what she wrote exactly, she explains that she "had a lot to say" and found herself bumping into the upper word limit for the assignment. This suggests that the discursive boundaries defining her knowledge of the readings were permeable and allowed her to retrieve a great deal of information, or at least write productively about them. It is also worth noting at this point that Claire cannot clearly remember that experience and was not able to say much about it besides that she was able to write productively.

Several turns later in the interview, Claire turned to her present understanding of Brandt and Leroux explaining, "There was a certain portion of the class where we were just like, I have nothing else to say about Brandt and Leroux. I have [pause] my brain [pause] like Charlotte would ask a question and there would be nothing inside." As Claire reports it, Brandt and Leroux, as identifiers for articles that students had read in class, went from productive sources for writing to completely unproductive sources. Anecdotally, I often hear students complain about a similar phenomenon occurring with course texts and often ones I'm quite fond of. I suggest it might be useful to consider the discursive boundaries that define these texts and the ideas that they contain. If students are initially interested, it suggests there is a

permeable boundary that allow for uptake of the course readings. In Claire's case, this mean that she gradually took up the knowledge from the readings, which established a gradually expanding discursive boundary defining her knowledge of Brandt and Leroux. A series of micro-transfers allowed this knowledge to grow and the discursive boundary expand. At first, the boundary of this discursive boundary defining Claire's understanding of these readings was permeable insofar as she was able to work with that knowledge set and use it to write. However, that boundary became increasingly impermeable as she got "tired" or bored of those readings to the point where she struggled to even answer explicit questions from Charlotte about Brandt and Leroux. In other words, she ceased being able to deploy that knowledge effectively. From a teacher's perspective, this might look like a student forgetting material that they had previously been able to engage with.

This series of micro-transfers is interesting because it illustrates a changing boundary first being established as Claire learns about these scholars, to a knowledge set that could be easily accessed, finally to one that was no longer accessible, at least as far as Claire reported it. I don't suspect that Claire forgot about Brandt and Leroux, and perhaps if the stakes were high enough, she would be able to engage with that knowledge, but more evidence would be needed to understand how this might occur. Thinking of Claire's understanding of Brandt and Leroux as a boundary rather than an empty space is useful because it suggests that to help Claire re-engage with these readings, we need to reframe the boundary so that it becomes more permeable. I suspect one way to do this might be to de-familiarize or de-naturalize Brandt's and Leroux's theory with counter theories or counter-examples that are insufficiently explained by this theory.

As to exactly why and how these micro-transfers occurred making Brandt and Leroux inaccessible is not apparent in the data that I collected, and more research would be useful in tracking this kind of micro-transfer across time. It is also worth noting that just as Catherine became more articulate in discussing the Common Core as the discursive boundary became more inflexible, impermeable, and well defined, Claire is able to more clearly articulate the boundary defining Brandt and Leroux as it presently existed. In other words, when she reported the initial boundary that was more flexible and permeable, she used vague language and couldn't remember what she wrote. When she reported her present understanding of Brandt and Leroux, she was able to be much more specific. This suggests that through the precession of micro-transfers, Claire gradually forgot—or at least was unable to report—past boundary configurations.

At this point we've seen two examples of increasingly inflexible, increasingly impermeable boundaries that are the result of a precession of micro-transfers. This final example I discussed at length in the previous chapter as a FP boundary, and I want to discuss it again here as an example of micro-transfer as it relates to a more traditional view of transfer. In our interviews, Jan reported how he was able to use rhetorical strategies learned in English 131 on a Political Science paper that received the best grades he'd ever received on a paper. This example seems to fit well with what Perkins and Salomon (1992) call "high road transfer," or conscious transfer, and illustrates what Nowacek (2011) describes as seeing connections between disciplines. Many early studies have suggested that transfer either is successful or not successful. Even though our research on transfer has become much more sophisticated by focusing dispositions and emotions and other student focused elements of transfer, to some

extent the notion has remained. Transfer either occurs or is frustrated. Students are either “boundary-crossers” or “boundary-guarders” (Reiff & Bawarshi, 2011). What micro-transfer allows us to see is that transfer is not just about the qualities or emotions or disposition of the student, but also about the series of boundary-work interactions that occur throughout the process of “transfer.” For Jan, micro-transfer encourages us to see a series of attempts. In this case, he tries applying what he learned in English 131 to Political Science, reporting that he wasn’t sure if it would work initially. He is able to do this probably due to the various FP boundaries that exist between the two and surrounding the rhetorical skills that are being used. However, he is unsure that the writing is going to work when he’s doing it. He says he felt good about it, but he was surprised to get a very good grade. He also suggests that since he received a positive response he will likely continue to apply the rhetorical skills to the Political Science context.

Focusing on micro-transfer allows us to think about the series of interactions that allowed Jan to attempt to apply these skills to Political Science, recognize that attempt was successful, and plan to do the same thing again. I did not, unfortunately, find out what happened in that Political Science class for the remainder of the term. In this case, however, it appears that Jan was successful and the process of assessing the context, developing a strategy, writing, assessing the results. This series of micro-transfers accumulated to yield an apparently successful transfer of rhetorical skills insofar as Jan received an uncharacteristically good grade on a writing assignment with the only reported change being Jan’s application of rhetorical strategies. Further research is needed to better understand the specific micro-transfers occurring through this process of applying rhetorical skills to Political Science writing. This

would require us to follow Jan through his moment to moment interactions, which I will discuss further below.

Micro-transfer has tremendous research and pedagogical potential because it encourages us to look at the moment-to-moment scale where students live. By focusing on the smaller level we are less likely to see movements of knowledge and skills or connections between discourses. However, we are more likely to see students learning, trying out what they've learned, making connections, and gradually developing knowledge and experience that allows them to perform in new and unfamiliar contexts. What's more, and perhaps what directed me towards boundary-work and understanding the nature of boundaries themselves in the first place was micro-transfer. Micro-transfer encourages us to not take boundaries for granted or as given and instead look closely at the boundary-work *and the boundaries marked by that work* as an essential element of transfer and perhaps its core work. In the next two sections I discuss the limitations of this study and the implications for further research on micro-transfer and boundary-work.

### **What we didn't see: Limitations and paths to future research**

I see this study very much as a proof-of-concept and an initial attempt at studying boundary-work and micro-transfer. This early work has yielded some interesting findings. However, there is much more that this study could do. I suggest that these limitations fall into three major categories: methodological, theoretical, and pedagogical. In designing the methods for this study, I drew heavily on the strategies past researchers in Composition and other Social Sciences used. A major methodological departure from many other transfer studies was my focus on one term of FYC. Instead of following students through several terms or several years,

I followed students through one quarter, hoping that what I lacked in breadth would be made up for in depth in weekly interviews, daily course observations, and analysis of writing. This is not without precedent, and Nowacek (2011) argues for capturing a “thick slice” in her groundbreaking work *Agents of Integration*. This focus on depth yielded good results. I was able to see how students were learning throughout the term and observed some phenomena that would not have been seen if I had only interviewed students once or twice a quarter for a few years. This is particularly true for course observations. However, while I set out to study micro-transfer, I found that my data collection could have been even closer. In other words, I suspect there is much to learn about boundary work in the moment-to-moment interactions, but this study only occasionally captured these, and relied more heavily on focal participants’ accounts of these interactions. A more continuous observation and data collection model, perhaps spanning even a shorter time frame might be useful. For instance, instead of relying on Jan to describe his experience using rhetorical skills on a Political Science assignment, it would have been useful to observe the process by which he did this. To do this, it would have been useful to observe Jan’s writing process through keylogging or activity logging, or perhaps by using a tool like the Meta-machine, a metacognition reflection logging system that I’m developing as part of Cluster (an Amazon Catalyst Grant funded project to develop a suite of writing tools to support writers and writing instructors).

A second methodological challenge stemmed from the kind of subjects that participated. As with any study, volunteer participants end up being a particular type of student and are likely not representative of the class at large. This is a common challenge, but a second issue that appeared was the relative lack of impermeable and inflexible boundaries that

appeared. I suspect that this is due to the fact that this study was conducted at a progressive research institution where students are generally there with the goal of learning. Since learning requires taking up new information and skills, students in general are probably more inclined to mark flexible and permeable boundaries. This is not universally the case, and perhaps the most important finding of this study is that permeability and flexibility depends on a very specific interaction rather than solely a general disposition. In other words, Michael, dispositionally seemed to be an ideal “boundary-crosser,” but in regards to his English 131 class and Gorgias’ instruction, Michael established fairly inflexible and impermeable boundaries. However, generally students are not inclined to be totally inflexible. I suspect that to better understand boundaries on the impermeable and inflexible end of the spectrum, it would be useful to conduct research at a site where those kinds of boundaries are more inclined to be marked. I suspect that impermeable and inflexible boundaries exist from largely anecdotal sources. I hypothesize that anti-vaxxers and climate change deniers might resist what seems like indisputable counterevidence to their perspectives due to impermeable, inflexible discursive boundaries. I also suspect that the political landscape in the United States right now would be a particularly useful research site. However, I also admit that I have insufficient research to effectively assert the existence of completely impermeable and inflexible boundaries. It is possible, and I certainly hope it is the case, that all boundaries have some degree of permeability and flexibility, but more research is needed.

In relation to research design, I initially set out to focus on movement and micro-transfer especially in the spatio-temporal field, but what appeared to be more interesting and useful in the data was the boundary-work. In other words, the main results that that this study

yielded were unexpected and that implied numerous lines of future research. This is a virtue of the grounded approach and illustrates the influence of grounded theory on the study—which allows the theoretical development to follow the evidence in the data. While they do not necessarily answer the research questions posed, the results of this study show a proof of concept and an approach to doing more. More could be done to better understand the fields that I have identified here and perhaps expand upon those fields. More research might increase the number of fields or further delineate the taxonomy of boundaries. Future studies would be well served by better targeting specific fields or types of boundaries to gain more substantial sets of data on those particular targets. Further, this study is limited in that it insufficiently separates the boundaries from each other to delineate the mechanics by which they interact. It is clear that numerous boundaries give form to a spatio-temporal discursive context in complex ways, but this study does not sufficiently illustrate how they do so and how they interact.

While the study design yields limitations, I suggest that it is a good stepping off point for conducting this sort of research on boundary-work and micro-transfer. Further research will help address the second major category of study limitations: theoretical limitations. The data analysis phase of this study revealed categories of boundaries based on the field in which they constituted and their flexibility and permeability, or their movement over time and their ability to limit movement and constrain action. Initially, these appeared to be fairly clear categories, but further analysis of the boundaries revealed this taxonomy to be more of a spectrum. In other words, II boundaries may flex slightly and might have some permeability, but significantly less so than FP boundaries. Further research would likely yield a more robust taxonomy that could better account for the various boundaries that are marked iteratively across time.

Additionally, the distinction between the fields requires further research. For instance, I discuss spatio-temporal boundary-work, but if we are to follow post-modern theorists and account for their work, these boundaries have little effect on human experience until they are rendered into the field of discourse. New materialists and ecological theorists have taken significant strides in qualifying post-modernism and bringing matter back into the conversation (Barad, 2007; Bennett, 2009; Coole & Frost, 2010; Fleckenstein et al., 2008; Jarratt et al., 2009; Pflugfelder, 2015). Future studies on boundary-work could effectively identify boundaries and the interactions between the fields.

These theoretical limitations of this study stem largely from the nature of grounded research. Since grounded theory suggests we avoid approaching data with theoretical preconceptions and instead allow the theory that explains the data to rise from the data itself, the theory will be limited to the quantity and quality of the data (Chiovitti & Piran, 2003; Dey, 1999; Glaser & Strauss, 2006). This approach appears in this study as I had to set aside my theoretical leanings when I started looking at the data. I initially set out interested in post-humanism and hoping to examine the kinds of rhetorical forces might be exerted in FYC. However, as I explained above, the data revealed much more about boundary-work and the kinds of boundaries that were marked. Of course, the data analysis was theoretically informed and Karen Barad's work was particularly useful in thinking about boundary-work. However, the data analysis required significant "letting go" of my own theoretical perspectives and alignments. Of course, this letting go yielded more interesting results, but it also prevents me from making the boundary taxonomy anything more than a proof of concept and stepping-off point for further research rather than a well-defined theory. Of course, this is to be expected in

this kind of dissertation study, and in this limitation, I am very pleased as I see great potential for a number of years of future research. I will discuss several approaches below. Further research will help improve the boundary-work taxonomy introduced here and better uncover the nature of micro-transfer.

### **The One about Pedagogy: Pedagogical Implications of Boundary-Work and Micro-transfer**

Perhaps the most significant limitation in the context of Writing Studies is the pedagogical limitation. I say this is a limitation not because there is not much to learn pedagogically from this study, but I suggest that since this is a first attempt at studying micro-transfer, I do want to resist what Sid Dobrin (2011) points out (and critiques) as a problem for Writing Studies, specifically our seemingly inevitable turn to pedagogical implications in all of our studies (it's also worth noting that Dobrin concludes *PostComposition*—a book in which he makes these critiques—with a section on pedagogical implications). The turn to pedagogy is no surprise as our field is more teaching focused than most, largely as a result of the importance of teaching FYC, a goal that many scholars have brought into question (Crowley, 1998; Dobrin, 2011; S. Miller, 1991; Smit & Hesse, 2007). I suspect, at least in part, due to disciplinary politics our research tends to align itself or push back against various pedagogical paradigms (“process” or “current-traditional” or “post-process,” and so on). I am not affiliating this study with a particular paradigm or to establish a new paradigm. First, the results of this study are insufficiently conclusive to make substantial pedagogical recommendations, particularly the sweeping, general ones that Writing Studies research often make. I suspect there is value in all approaches, and the complexity that appears in even this initial foray into boundary-work and micro-transfer research illustrates the need for instructors to be something of eclectic-

bricoleurs. The boundary-work in the context of a FYC class is varied, diverse, multi-faceted, and many interactions occur simultaneously. An instructor is likely most effective when they are able to engage with as many of these interactions as possible in as targeted a fashion as possible.

A second implication for pedagogy that I found particularly important is that in general, a focus on rhetorical strategies appeared to be very useful in Gorgias' 131 class. Further, despite the spatio-temporal and discursive boundaries in English 121 between the service sites and the classroom context, Charlotte's efforts to encourage students to "transfer" or make connections between the two were not without benefit. As I suggested above, students were inclined to encounter an II boundary between the two contexts, but some movement did occur between the two when Charlotte explicitly demanded it in class. Finally, the activity that Gorgias had the students do through the first assignment sequence that forced them to engage with multiple sides of fairly divisive issues seems to have a potential in helping students be more aware of alternative perspectives. The concern for alternative perspectives is tremendously important right now when most of our rhetorical action is mediated through digital technology, and the algorithms that constrain our actions therein have a tendency to keep us caught in filter-bubbles. *Dissoi logoi* or any activity that requires students to engage with alternative perspectives seems to be a useful antidote.

Jan, for instance, started his first assignment sequence taking the pro-Keystone XL pipeline stance. His first writing assignment is highly polemical, shows a general disdain for environmentalists, and establishes a well-defined boundary between "us" (those who would agree with Jan's argument) and "them" (the environmentalists). After encountering the other

perspective, Jan is able to construct a much more generous argument that supports the Keystone XL pipeline but genuinely accounts for the concerns of environmentalists. In our discussions, Jan suggested that these sentiments were pretty close to his own feelings, and he actually did become genuinely more understanding of the counter-argument. I also suspect that going through this process of boundary-work was likely more effective in increasing Jan's openness to environmentalist ideals, which relates to the permeability of his identity-boundary, than if Gorgias had forced students to read pro-environmentalist texts or promoted a particular agenda. While I'm not saying that we ought to all teach disoi logoi, I am saying that if we are concerned with the kind of boundary-work that prevents people with alternative perspectives from communicating, and if we are concerned about polarization of the public discourse as a result of that boundary-work, then we might be well served by considering incorporating this into our pedagogy.

The most important pedagogical implications that I see focus on how teachers might pay attention. The first way teachers might pay attention to boundaries not only as obstacles to learning but also as the differentiating lines that give ideas, disciplines, people, and material objects their identities. Some degree of boundary-marking is necessary and inevitable. This means that instructors likely would be served by paying attention to how boundaries establish the configuration of their classroom and the other learning contexts they invite students into. For instance, Gorgias recognizing the identity boundaries that were being marked around him and the student he accosted for playing on his computer might have allowed him to revise his interaction with the student preventing him from isolating himself from several sessions of class. On the other hand, by presenting rhetorical techniques as something of practical use and

relevant to current important political issues, Gorgias helped students become interested in these strategies, and all focal participants reported seeing value particularly in the first sequence of Gorgias' course. This might be understood as students interacting with a discursive boundary defining these rhetorical techniques that was permeable, making the techniques accessible. Gorgias was particularly clear with his explanations of these techniques and worked to establish these boundaries in a way that was relevant to students.

Attention to these boundaries allows teachers also to consider the contexts across which these boundaries are drawn and the work that goes into marking them. This means while teachers have a good deal of agency, all of the boundary-work that occurs in a classroom is the result of interactions. We see this in Michael's interaction with the attendance question. No other focal student reported being offended by Gorgias' question, and I didn't get a sense of discomfort among the students when I observed class. In other words, their interactions with Gorgias' utterance were not particularly problematic and did not yield precessions of micro-transfers that prevented them from engaging with the class. Michael on the other hand responded quite violently about it in our interview. I'm not suggesting that teachers need to or perhaps can account for every potentiality in the force they exert in the class, but they should take care and consider the various potential interactions and the kinds of micro-transfers those interactions might produce. In addition, instructors might be prepared to identify when unproductive boundaries are being marked. By "unproductive" I do not mean inflexible and impermeable because I think some degree of inflexibility and impermeability in boundaries can be useful and is necessary for students to gain solid understandings of things. Likewise, flexible and permeable boundaries can be the result of a lack of knowledge or concern for an issue. I

would suggest that unproductive boundaries are those that yield sequences of micro-transfers that disrupt the goals of the class.

In the same sense, teachers might be encouraged to be mindful of the spatio-temporal boundaries of their classroom. I'm not saying that we should all sit in circles, but we should be aware and deliberate regarding the elements of the spatio-temporal environment that we can control. For instance, one of my own challenges as an instructor is time management. I almost always run over the end of class, and as a result material and often the final announcements like homework assignments or readings or other important information are often left with insufficient time. This is a significant issue because by compressing the spatio-temporal boundary defining these announcements or by forcing them to occupy the space of the announcement board on Canvas. I have not studied the effects of this practice, but I do suspect it makes students feel hurried or that the final portion of class is less important, and by attending to these boundaries I could help students have better interactions with my class.

In regards to unproductive boundaries, a micro-transfer perspective is especially useful for instructors because it allows them to consider what sort of force they might exert to help students gradually—through a series of these micro-transfers—develop more productive boundaries and trajectories through the class. For instance, a teacher encountering a student like Claire who has become bored with a course reading might consider how they might denaturalize the discursive boundary defining that reading in the student's mind. By doing this they might help a student reengage with the text and its ideas as the boundary becomes more permeable. The best example of this appears in English 131's first assignment sequence. It forced students to both establish strong discursive boundaries defining controversial topics

through a debate and engage with counterarguments that disrupted or challenged their previous boundary-work. As a result, the discursive boundaries that focal participants encountered in this assignment were both well defined, but also flexible. Students were able to understand the issue in a complex way through a series of micro-transfers that forced them to reconsider what they thought they knew consciously. I see potential for this kind of activity with micro-transfer in mind not only as useful in helping students develop critical thinking dispositions but also in helping challenge some of the polarization and close-mindedness that dominates much of public discourse.

Finally, I see some potential in helping students consider boundary-work. I attempted this when I initially began reading it taking a post-humanist approach to teaching FYC. This was not very successful. Students did their best, but in general, they were highly resistant to the notion that things do not exist prior to our interaction with them. Perhaps as uncertainty becomes a larger component of public discourse, students might have an easier time with this, but in my experience, it was not successful. That being said, I do see boundary-work as a useful perspective for students, particularly regarding the interactional nature of boundary work. By better understanding the network of micro-transfers that established the world around them in any given moment, students will be in a better position to join in those interactions consciously and with greater agency. This could fit with a meta-cognition focused class or perhaps in a Writing About Writing class. I do see micro-transfer and boundary-work as relevant to writing and rhetoric more generally because they are two major ways we exert force into the three fields.

As boundary-work and micro-transfer are further researched and as our understanding of these phenomena grows, likely a more robust set of best teaching practices will be established. For now, I suspect it could be of some use for teachers to consider this perspective and encourage students to think of their learning as a series of interactions that are part of the larger becoming of the world (or at least the class). In the final section, I will discuss some theoretical implications and more importantly paths for future research.

### **What's Next? Implications for Future Research: A Conclusion**

In the end I see this study largely as a proof-of-concept for future research, those future research paths are many and varied. Pursuit of that research has the potential not only to strengthen the theoretical framework associated with boundary-work and micro-transfer, but more importantly to help us better understand how students learn, how writing does work, how it is performed, and more generally the relationship between the material and the discursive layers of our existence. In this final section, I will conclude with a discussion of what research paths I'm inclined to travel first.

There are several potential studies that would be useful to take up next as I further refine this theory. The first of these would be to shift the focus even more closely onto each of the fields. I am particularly interested in the spatio-temporal field because I am still concerned with extending the conversation in new-materialism and object-oriented ontology. Useful driving research questions might be: how do spatio-temporal boundaries move over time? How do human bodies interact with these spatio-temporal boundaries? How do spatio-temporal boundaries interact with discursive and identity boundaries? These questions would be best studied by deploying video recording technology and a tracing method involving a researcher

drawing out the movements that they observe in the classroom (Prior, 2003; Prior & Shipka, 2003). By combining the fairly precise representation available in a video recording with the additional human senses that a researcher brings to the study we could see a very rich picture of the kinds of movements that occur in the spatio-temporal field.

Ann Shivers-McNair (2017) has started doing this sort of research in her dissertation study, and drawing on that research would be particularly beneficial. Shivers-McNair uses the term “3D interviewing” to “describe [her] work to account for bodies, movements, spatial relations, and spoken and written words” (2017, p. 42). This is a useful approach because it takes very seriously the boundaries across the three fields and their interactions. With this kind of approach boundaries could be identified by the way that various bodies in the field can exert force on one another. For instance, the non-focal student in Gorgias’ class hunched his body over to resist the force of public shaming that Gorgias was exerting on him. Likewise, movement of tables and the overall configuration of the classroom space would be a significant flexing of the spatio-temporal boundaries and from my own experience teaching has a rippling effect across the entire local spatio-temporal field. I suspect that since this study method would collect a tremendous amount of data in a very short time, a researcher could start by observing a week worth of class sessions. By starting small, a researcher could locate initial patterns and determine how much more data would be valuable, and if it is worth observing every day or just days when major movements in the spatio-temporal field are to be expected like days when the instructor is planning group work.

One of the major challenges with studying micro-transfer in this study was that even though I observed nearly all class sessions and interviewed focal participants weekly, data

collection was insufficiently present to observe a very long chain of micro-transfers. A better approach might be to select one focal participant and observe them all of the time. Anne Beaufort's (2007) six-year longitudinal study of Tim in her book *College Writing and Beyond: A New Framework for University Writing Instruction* might be a good model, particularly if that study were focused on micro-transfer. That being said, micro-transfer requires very close observation because writing is not isolated to the moment in which writing is occurring or the context of the writing class, but rather is probably affected by the various activities of daily life, it would be useful to gather data on all of that. Much of that could be delegated to robots. For instance, student writing (as a verb) could be captured through the use of activity-logging and key-logging software. Researchers, particularly those studying second language acquisition, have already gained interesting results from these technologies, and it would be useful to deploy them in micro-transfer research (Chukharev-Hudilainen, 2014; Dragsted & Carl, 2013; Leijten & Van Waes, 2013). Beyond activity tracking, wearable cameras, and perhaps even a self-flying camera drone like the HexoPlus (a drone that follows the user's movement and captures video without the need of a human pilot) could be useful in observing a study participant throughout the day. This kind of research would certainly be invasive and pose privacy risks, and it would likely require additional protocols to pass IRB review, but the potential to capture in real time the writing process would be tremendous—perhaps an effective return to what process researchers were trying to accomplish with compose-aloud protocols. Additionally, this kind of study could have a researcher go around with their focal participant during the days to their various classes and activities. I strongly suspect that these

activities influence writing and learning, particularly for students like Banana who finds she does her best writing away from her desk and interspersed with her daily activities.

The researcher would need to account for that and have a useful strategy for coding and analyzing the veritable mountain of data that would result. This would likely involve identifying the various spatio-temporal, discursive, and identity boundaries that are marked throughout the day and the kinds of interactions that produce them. Once identified, it would be useful to see how they change over time. For instance, I was able to see how the discursive boundary changed for Lisa over time, but since I did not observe her this closely, I was unable to see the specific mechanics that caused it to change. Again, this kind of study might pose a problem for the IRB and more work would be required to justify the potential risk—specifically the degree of surveillance required and risk of data breach—against the potential benefits of such a study. The potential benefits would be a very thick observation of how a student learns in a writing class. However, since micro-transfer requires such a tight focus it might be best to gradually work up to a longitudinal study. That way one could develop training sets for machine learning algorithms that could at least help filter the data. For instance, I spent many weeks reading through transcripts and writing samples into groups by the patterns that appeared. After a number of smaller studies in which a researcher tagged the data carefully, a machine learning algorithm could do this initial sorting for the researcher.

Beyond the initial sorting, I suspect that it would be possible to identify particular textual features in the students' writing that denote particular types of micro-transfer and boundary-work. If this kind of code based on textual features could be developed, then it could be used to train another natural language processing or machine learning algorithm. With such

an algorithm one could look at a massive corpus of student writing and transcripts (either from one student or numerous students depending on whether we're looking for a longitudinal and qualitative data or quantitative data) and begin to gain some increasingly valid, reliable, and generalizable results. Many researchers have been using corpus linguistics and natural language processing to analyze large collections of texts (Aull & Lancaster, 2014; D. B. Dryer, 2013; Schlitz, 2010; Swales, 2014), but as machine learning becomes more powerful, there is a great potential to augment this research with digital tools. I am particularly interested in developing training sets using the methods above to train Scikit-Learn algorithms. Scikit-Learn is a popular machine learning library in Python and has much more flexibility and is more powerful than many of the corpus linguistics tools that are being used (notably regular expressions and concordances). The advantage to machine learning over regular expressions and concordances is that the patterns to be matched can be significantly more complex and the entire corpus does not need to be tagged, just the training set.

I do think this sounds a little bit much like surveillance, and I think it would be crucial in this kind of study to incorporate interviews and human observations alongside the technological tools. Additionally, a number of recent students have used the term "informant" to describe a research participant. I think that notion would be crucial in a study using these kinds of technological means to collect data. An informant is to some degree in control of the information they share and have some choice over whether they share it or not. Likewise, a participant of a study using the methods I discuss above would need to be invested in the study and have a final say over the data that can and cannot be used. Additionally, in this study, I used both a coding and an encryption system for my data sets. Even greater precaution would

be needed for a study that uses video and usage tracking. With appropriate precautions and “informant” level involvement of the focal participant, many of the risks of this kind of study could be mitigated.

Finally, as I mentioned above, academia may not be the best site for a thorough research of boundaries and boundary-work. Generally, students are inclined to encounter more flexible and permeable boundaries because they are there ostensibly to learn. Learning involves movement and flexibility, and so academia is not a great place to encounter impermeable and inflexible boundaries. I see great potential in a study in boundary-work outside of academia. For instance, the boundary separating the two poles of the political spectrum is likely highly inflexible and impermeable, and the results of this boundary are significant and have far-reaching social implications. Another example of a research site might be political and cultural borders. Many scholars, more than I can effectively cite here, are studying the effects on language of these borders (Guerra, 2008; Horner, Lu, & Matsuda, 2010; Lunsford & Ouzgane, 2004). I suspect that looking at these borders through the lens of boundary-work as I discuss it here might be fruitful. This is particularly important in a time when we seem to be moving towards building walls rather than tearing them down. I believe that this kind of public scholarship is vital not only for its potential to extend the theory, but also because academics have a role to play in contributing to the social good especially in this particular moment in time when a concern for knowledge is on the decline in the public sphere.

## References

- Adler-Kassner, L., Majewski, J., & Koshnick, D. (2012). The Value of Troublesome Knowledge: Transfer and Threshold Concepts in Writing and History. *Composition Forum*, 26. Retrieved from <http://compositionforum.com/issue/26/troublesome-knowledge-threshold.php>
- Agar, M. (2008). *The professional stranger: an informal introduction to ethnography*. Bingley, UK; North America: Emerald.
- Agar, M. H. (1983). Ethnographic evidence. *Urban Life : A Journal of Ethnographic Research*.
- Althusser, L., Balibar, E., & Bidet, J. (2014). *On The Reproduction Of Capitalism: Ideology And Ideological State Apparatuses*. (G. M. Goshgarian, Trans.). London ; New York: Verso.
- Anderson, B. (2016). *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (Revised edition). London: Verso.
- Anson, C. M., & Moore, J. (2017). *Critical Transitions: Writing and the Question of Transfer*. University Press of Colorado.
- Anyon, J. (1980). Social Class and the Hidden Curriculum of Work. *The Journal of Education*, 162(1), 67–92.
- Aristotle. (2009). Rhetoric. Retrieved April 28, 2016, from <http://classics.mit.edu/Aristotle/rhetoric.1.i.html>
- Aull, L. L., & Lancaster, Z. (2014). Linguistic markers of stance in early and advanced academic writing: A corpus-based comparison. *Written Communication*, 31(2), 151–183.
- Barad, K. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Durham: Duke University Press.

- Bartholomae, D. (1986). Inventing the University. *Journal of Basic Writing*, 5(1), 4–23.
- Barton, E. L., & Stygall, G. (2002). *Discourse studies in composition*. Cresskill, N.J.: Hampton Press.
- Bass, R., & Moore, J. L. (2017). *Understanding Writing Transfer: Implications for Transformative Student Learning in Higher Education*. Stylus Publishing, LLC.
- Baudrillard, J. (1983). The Precession of Simulacra. In S. F. Glaser (Trans.), *Simulations* (pp. 1–79). New York: Semiotext(e). Retrieved from <http://www.mariabuszek.com/kcai/GenresMedia/Readings/BaudrillardPrecession.pdf>
- Bawarshi, A. S. (2003). *Genre and the invention of the writer: reconsidering the place of invention in composition*. Logan, Utah: Utah State University Press.
- Bazerman, C. (2005). *Reference guide to writing across the curriculum*. West Lafayette, Ind.: Parlor Press : WAC Clearinghouse.
- Beach, K. (1999). Chapter 4: Consequential Transitions: A Sociocultural Expedition Beyond Transfer in Education. In *Review of Research in Education - REV RES EDUC* (Vol. 24, pp. 101–139).
- Beaufort, A. (1999). *Writing in the real world: making the transition from school to work*. New York: Teachers College Press.
- Beaufort, A. (2007). *College writing and beyond a new framework for university writing instruction*. Logan, UT: Utah State University Press. Retrieved from <http://site.ebrary.com/id/10328614>

- Beaufort, A. (2012). Retrospective: College Writing and Beyond: Five Years Later. *Composition Forum*, 26. Retrieved from <http://compositionforum.com/issue/26/college-writing-beyond.php>
- Bennett, J. (2009). *Vibrant Matter: A Political Ecology of Things*. Duke University Press.
- Berlin, J. A. (1987). *Rhetoric and reality: writing instruction in American colleges, 1900-1985*. Carbondale: Southern Illinois University Press.
- Bitzer, L. F. (1968). The Rhetorical Situation. *Philosophy & Rhetoric*, 1(1), 1–14.
- Bizzell, P. (1992). *Academic discourse and critical consciousness*. Pittsburgh: University of Pittsburgh Press.
- Bizzell, P. L. (1978). The Ethos of Academic Discourse. *College Composition and Communication*, 29(4), 351–55.
- Bourdieu, P. (1977). *Outline of a theory of practice*. Cambridge, U.K.; New York: Cambridge University Press.
- Brandt, D. (1998). Sponsors of Literacy. *College Composition and Communication*, 49(2), 165–85.
- Brereton, J. C. (1995). *The origins of composition studies in the American college, 1875-1925: a documentary history*. Pittsburgh: University of Pittsburgh Press.
- Burke, K. (1969). *A rhetoric of motives*. Berkeley: University of California Press.
- Butler, J. (2011). *Bodies That Matter: On the Discursive Limits of Sex* (1 edition). New York, NY: Routledge.
- Certeau, M. de. (1984). *The practice of everyday life*. Berkeley: University of California Press.

Chiovitti, R. F., & Piran, N. (2003). Rigour and grounded theory research. *Journal of Advanced Nursing, 44*(4), 427–435.

Chiseri-Strater, E. (1991). *Academic literacies: the public and private discourse of university students*. Portsmouth, NH: Boynton/Cook.

Chiseri-Strater, E. (1996). Turning in upon ourselves: Positionality, subjectivity, and reflexivity in case study and ethnographic research. *Ethics and Representation in Qualitative Studies of Literacy, 115–133*.

Chukharev-Hudilainen, E. (2014). Pauses in spontaneous written communication: A keystroke logging study. *Journal of Writing Research, 6*(1). Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site&authType=crawler&jrnl=20301006&AN=101197716&h=DZpRWmUAvt4bmkIKW3u0rEXM8w4kfFjrSNVJD3E0ap2%2Fgim%2FO8LO4M%2FzH%2FtXqsemILemIUdEecHQkDTDF1tfYA%3D%3D&crl=c>

Cintron, R. (1997). *Angels' town: chero ways, gang life, and rhetorics of the everyday*. Boston, Mass.: Beacon Press.

Clifford, J. (1988). *The predicament of culture: twentieth-century ethnography, literature, and art*. Cambridge, Mass.: Harvard University Press.

Composition Forum: Volume 26: Fall 2012. (2012). Retrieved September 24, 2016, from <http://compositionforum.com/issue/26/>

Consigny, S. (1974). Rhetoric and its situations. *Philosophy & Rhetoric, 7*(3), 175–186.

Coole, D., & Frost, S. (Eds.). (2010). *New Materialisms: Ontology, Agency, and Politics*. Durham: Duke University Press.

- Crenshaw, K. (1989). Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics. *University of Chicago Legal Forum*, 1989, 139–168.
- Crenshaw, K. (1991). Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color. *Stanford Law Review*, 43(6), 1241–1299.  
<https://doi.org/10.2307/1229039>
- Creswell, J. W. (2007). *Qualitative inquiry & research design: choosing among five approaches*. Thousand Oaks: Sage Publications.
- Crowley, S. (1998). *Composition in the university: historical and polemical essays*. Pittsburgh: University of Pittsburgh Press.
- Deleuze, G., & Guattari, F. (1987). *A Thousand Plateaus: Capitalism and Schizophrenia*. (B. Massumi, Trans.) (1st Edition edition). Minneapolis: University of Minnesota Press.
- Devitt, A. J. (2004). *Writing genres*. Carbondale: Southern Illinois University Press.
- Dey, I. (1999). *Grounding grounded theory: guidelines for qualitative inquiry*. San Diego: Academic Press.
- Dingo, R. A. (2012). *Networking arguments: rhetoric, transnational feminism, and public policy writing*. Pittsburgh, Pa.: University of Pittsburgh Press.
- Dobrin, S. I. (2011). *Postcomposition*. SIU Press.
- Dobrin, S. I. (2012). *Ecology, Writing Theory, and New Media: Writing Ecology*. Routledge.
- Downs, D., & Wardle, E. (2007). Teaching about Writing, Righting Misconceptions: (Re)Envisioning “First-Year Composition” as “Introduction to Writing Studies.” *College Composition and Communication*, 58(4), 552–584.

- Dragsted, B., & Carl, M. (2013). Towards a classification of translation styles based on eye-tracking and keylogging data. *Journal of Writing Research*, 5(1). Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site&authType=crawler&jrnl=20301006&AN=94428289&h=NAhy%2F4u%2FceFubQdEqJpxFzL%2FoTm1fwKpdPNGp5YKSBwL1LxZxa605yN1hkurtlcmPLswh2X%2BJvYw%2FcVYdmwHQw%3D%3D&crl=f>
- Driscoll, D. L., & Perdue, S. W. (2012). Theory, Lore, and More: An Analysis of RAD Research in "The Writing Center Journal," 1980–2009. *The Writing Center Journal*, 32(2), 11–39.
- Driscoll, D. L., & Wells, J. H. M. (2012). Beyond Knowledge and Skills: Writing Transfer and the Role of Student Dispositions in and beyond the Writing Classroom. *Composition Forum*, 26. Retrieved from <http://compositionforum.com/issue/26/beyond-knowledge-skills.php>
- Dryer, D. B. (2013). Scaling Writing Ability A Corpus-Driven Inquiry. *Written Communication*, 30(1), 3–35. <https://doi.org/10.1177/0741088312466992>
- Dryer, D. B. (2016). Disambiguating Uptake: Toward a Tactical Research Agenda on Citizens' Writing. In M. J. Reiff & A. Bawarshi (Eds.), *Genre and the Performance of Publics* (pp. 60–79). Utah State University Press. Retrieved from <http://upcolorado.com/utah-state-university-press/item/2791-genre-and-the-performance-of-publics>
- Dryer, D., & Peckham, I. (2014). Social Contexts of Writing Assessment: Toward an Ecological Construct of the Rater. *WPA, Writing Program Administration*, 38(1). Retrieved from <http://connection.ebscohost.com/c/articles/100262181/social-contexts-writing-assessment-toward-ecological-construct-rater>

- Dyke Ford, J. (2004). Knowledge Transfer Across Disciplines: Tracking Rhetorical Strategies From a Technical Communication Classroom to an Engineering Classroom. *IEEE Transactions on Professional Communication*, 47(4).
- Edbauer, J. (2005). Unframing models of public distribution: From rhetorical situation to rhetorical ecologies. *Rhetoric Society Quarterly*, 35(4), 5–24.
- Elon Statement on Writing Transfer. (2013). Retrieved from [http://www.elon.edu/e-web/academics/teaching/ers/writing\\_transfer/statement.xhtml](http://www.elon.edu/e-web/academics/teaching/ers/writing_transfer/statement.xhtml)
- Emig, J. (1971). The Composing Processes of Twelfth Graders. Retrieved from <https://eric.ed.gov/?id=ED058205>
- Faigley, L. (1992). *Fragments of rationality: postmodernity and the subject of composition*. Pittsburgh: University of Pittsburgh Press.
- Fleckenstein, K. S., Spinuzzi, C., Rickly, R. J., & Papper, C. C. (2008). The Importance of Harmony: An Ecological Metaphor for Writing Research. *College Composition and Communication*, 60(2), 388–419.
- Foucault, M. (1969). *L'Archeologie du Savoir*. Paris: Gallimard.
- Foucault, M. (2002). *Archaeology of knowledge*. London; New York: Routledge.
- Freadman, A. (2002). Chapter 2: Uptake. *Rhetoric & Ideology of Genre*, 39–53.
- Freadman, A. (2012). The Traps and Trappings of Genre Theory. *Applied Linguistics*, 33(5), 544–563.
- Gee, J. P. (2011). *An introduction to discourse analysis: theory and method*. Milton Park, Abingdon; New York: Routledge.
- Geertz, C. (1973). *The interpretation of cultures: selected essays*. New York: Basic Books.

- Glaser, B. G., & Strauss, A. L. (2006). *The discovery of grounded theory: strategies for qualitative research*. New Brunswick, N.J.: Aldine Transaction (a division of Transaction Publishers).
- Goggin, P. N. (2013). *Environmental rhetoric and ecologies of place*.
- Guerra, J. (2008). Cultivating Transcultural Citizenship: A Writing across Communities Model. *Language Arts*, 85(4), 296–304.
- Guerra, J. (2015). Trans-ing Our Way through Matter and Meaning. *Literacy in Composition Studies*, 3(3), 131–133.
- Habermas, J. (1984). *The theory of communicative action*. Boston: Beacon Press.
- Harris, J. (2012). *A teaching subject composition since 1966*. Logan, Utah: Utah State University Press. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=435726>
- Haskell, R. E. (2000). *Transfer of Learning, Volume .: Cognition and Instruction* (1 edition). San Diego, Calif: Academic Press.
- Haswell, R. H. (2005). NCTE/CCCC's Recent War on Scholarship. *Written Communication*, 22(2), 198–223. <https://doi.org/10.1177/0741088305275367>
- Hawk, B. (2007). *A counter-history of composition: toward methodologies of complexity*. Pittsburgh, PA: University of Pittsburgh Press.
- Horner, B., Lu, M.-Z., & Matsuda, P. K. (2010). *Cross-language relations in composition*. Carbondale: Southern Illinois University Press. Retrieved from <http://site.ebrary.com/id/10394914>

- Jarratt, S., Mack, K., Sartor, A., & Watson, S. (2009). Pedagogical Memory: Writing, Mapping, Translating. *WPA: The Journal of Writing Program Administration*, 33(1–2), 46–73.
- Johnstone, B. (2002). *Discourse analysis*. Malden, Mass.: Blackwell.
- Kerschbaum, S. L. (2015). *Toward a New Rhetoric of Difference*. College Conference of Composition and Communication of the NCTE.
- Kleinsasser, A. M. (2000). Researchers, reflexivity, and good data: Writing to unlearn. *Theory into Practice*, 39(3), 155–162.
- Lamont, M. (1992). *Cultivating Differences: Symbolic Boundaries and the Making of Inequality*. University of Chicago Press.
- Latour, B. (2007). *Reassembling the social: an introduction to actor-network-theory*. Oxford; New York: Oxford University Press.
- LeCompte, M. D., & Goetz, J. P. (1982). Problems of Reliability and Validity in Ethnographic Research. *Review of Educational Research*, 52(1), 31–60.
- Lefebvre, H. (1991). *The production of space*. Oxford, OX, UK; Cambridge, Mass., USA: Blackwell.
- Leijten, M., & Van Waes, L. (2013). Keystroke logging in writing research: Using Inputlog to analyze and visualize writing processes. *Written Communication*, 30(3), 358–392.
- Leonard, R. L., & Nowacek, R. (2016). Transfer and Translingualism. *College English*, 78(3). Retrieved from <http://www.ncte.org/journals/ce/issues/v78-3>
- Lu M.-Z, & Horner B. (2013). Translingual literacy, language difference, and matters of Agency. *Coll. Engl. College English*, 75(6), 582–607.
- Lunsford, A. A., & Ouzgane, L. (2004). *Crossing Borderlands: Composition and Postcolonial Studies*. University of Pittsburgh Pre.

- Matsuda, P. K. (2015). Identity in Written Discourse. *Annual Review of Applied Linguistics*, 35, 140–159.
- Miller, C. R. (1984). Genre as Rhetorical Action. *Quarterly Journal of Speech*, 70, 151–167.
- Miller, S. (1991). *Textual carnivals: the politics of composition*. Carbondale: Southern Illinois University Press.
- Nowacek, R. S. (2011). *Agents of integration: understanding transfer as a rhetorical act*. Carbondale: Southern Illinois University Press.
- Perkins, D. N., & Salomon, G. (1992). Transfer of Learning. In *International Encyclopedia of Education* (2nd ed.). Oxford, UK: Pergamon Press.
- Pew Research Center. (2011). *War and Sacrifice in the Post-9/11 Era*. Retrieved from <http://www.pewsocialtrends.org/2011/10/05/war-and-sacrifice-in-the-post-911-era/>
- Pflugfelder, E. H. (2015). Rhetoric's New Materialism: From Micro-Rhetoric to Microbrew. *Rhetoric Society Quarterly*, 45(5), 441–461.  
<https://doi.org/10.1080/02773945.2015.1082616>
- Phoenix, A., & Pattynama, P. (2006). Intersectionality.
- Poirot, K. (2014). *A Question of Sex: Feminism, Rhetoric, and Differences That Matter*. University of Massachusetts Press. Retrieved from <http://www.jstor.org/stable/j.ctt5vk2v4>
- Prior, P. (2003). Tracing Process: How Texts Come Into Being. In C. Bazerman (Ed.), *What Writing Does and How it Does It: An Introduction to Analyzing Texts* (pp. 167–200). Florence: Taylor & Francis.
- Prior, P., & Shipka, J. (2003). Chronotopic lamination: Tracing the contours of literate activity. *Writing Selves, Writing Societies: Research from Activity Perspectives*, 180–238.

- Rai, C. (2016). *Democracy's Lot*. The University of Alabama Press. Retrieved from <https://muse-jhu-edu.offcampus.lib.washington.edu/book/44715>
- Reiff, M. J., & Bawarshi, A. (2011). Tracing Discursive Resources: How Students Use Prior Genre Knowledge to Negotiate New Writing Contexts in First-Year Composition. *Written Communication, 28*(3), 312–337. <https://doi.org/10.1177/0741088311410183>
- Rice, Jeff. (2012). *Digital Detroit rhetoric and space in the age of the network*. Carbondale: Southern Illinois University Press. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=466185>
- Rice, Jenny. (2012). *Distant publics: development rhetoric and the subject of crisis*. Pittsburgh, Pa.: University of Pittsburgh Press.
- Rickert, T. (2016). Rhetorical prehistory and the Paleolithic. *Review of Communication, 16*(4), 352–373. <https://doi.org/10.1080/15358593.2016.1207358>
- Rickert, T. J. (2013). *Ambient rhetoric: the attunements of rhetorical being*.
- Rounsaville, A. (2012). Selecting Genres for Transfer: The Role of Uptake in Students' Antecedent Genre Knowledge. *Composition Forum, 26*. Retrieved from <http://compositionforum.com/issue/26/selecting-genres-uptake.php>
- Russell, D. (1995). Activity Theory and Its Implication for Writing Instruction. In J. Petraglia (Ed.), *Reconceiving Writing, Rethinking Writing Instruction* (pp. 51–77). New York: Routledge.
- Russell, D. R. (1997). Rethinking Genre in School and Society: An Activity Theory Analysis. *Written Communication, 14*(4), 504–54.

- Russell, D. R. (2002). *Writing in the academic disciplines a curricular history*. Carbondale, IL: Southern Illinois University Press.
- Schlitz, S. (2010). Introduction to the special issue: Exploring corpus-informed approaches to writing research. *Journal of Writing Research*, 2(2), 91–98.
- Shaughnessy, M. P. (1979). *Errors and Expectations: A Guide for the Teacher of Basic Writing*. Oxford University Press.
- Shivers-McNair, A. (2017). *Making, Marking, Mattering: What We Can Learn about Writing, Rhetoric, and Technology from a Makerspace* (Dissertation). University of Washington, Seattle.
- Smagorinsky, P. (2008). The Method Section as Conceptual Epicenter in Constructing Social Science Research Reports. *Written Communication*, 25(3), 389–411.  
<https://doi.org/10.1177/0741088308317815>
- Smit, D. W., & Hesse, D. (2007). *The End of Composition Studies*. Southern Illinois University Press. Retrieved from <https://muse.jhu.edu/book/24946>
- Soja, E. W. (1996). *Thirdspace: journeys to Los Angeles and other real-and-imagined places*. Cambridge, Mass.: Blackwell.
- Sommers, N. (1980). Revision Strategies of Student Writers and Experienced Adult Writers. *College Composition and Communication*, 31(4), 378–388.
- Sommers, N., & Saltz, L. (2004). The Novice as Expert: Writing the Freshman Year. *College Composition and Communication*, 56(1), 124–149. <https://doi.org/10.2307/4140684>
- Spinuzzi, C. (2003). *Tracing genres through organizations: a sociocultural approach to information design*. Cambridge, Mass.: MIT Press.

Spinuzzi, C. (2008). *Network: theorizing knowledge work in telecommunications*. Cambridge; New York: Cambridge University Press.

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

Swales, J. M. (2014). Variation in citational practice in a corpus of student biology papers: From parenthetical plonking to intertextual storytelling. *Written Communication*, 31(1), 118–141.

Tardy, C. M. (2009). *Building genre knowledge*. West Lafayette, Ind.: Parlor Press.

Toulmin, S. (2003). *The uses of argument*. Cambridge, U.K.; New York: Cambridge University Press.

Tuomi-Grohn, T., & Engestrom, Y. (Eds.). (2003). *Between School and Work: New Perspectives on Transfer and Boundary Crossing* (1 edition). Amsterdam ; Boston: Emerald Group Publishing Limited.

Vatz, R. E. (1973). The myth of the rhetorical situation. *Philosophy & Rhetoric*, 6(3), 154–161.

Villanueva, V., & Arola, K. L. (Eds.). (2011). *Cross-Talk in Comp Theory: A Reader; 3rd Edition*.

National Council of Teachers of English. Retrieved from

<https://secure.ncte.org/store/cross-talk-in-comp-theory-3rd>

Wardle, E. (2009). “Mutt Genres” and the Goal of FYC: Can We Help Students Write the Genres of the University? *College Composition and Communication*, 60(4), 765–789.

Wardle, E. (2012). Creative Repurposing for Expansive Learning: Considering “Problem Exploring” and “Answer-Getting” Dispositions in Individuals and Fields. *Composition*

*Forum*, 26. Retrieved from <http://compositionforum.com/issue/26/creative-repurposing.php>

Wardle, E. (2014). Review Essay: Considering What It Means to Teach “Composition” in the Twenty-First Century. *College Composition and Communication*, 65(4), 659–671.

Williams, J. M. (1981). The Phenomenology of Error. *College Composition and Communication*, 32(2), 152–168. <https://doi.org/10.2307/356689>

Yancey, K. B., Robertson, L., & Taczak, K. (2014). *Writing across Contexts*. University Press of Colorado. Retrieved from <http://www.jstor.org/stable/j.ctt6wrr95>

## Appendix I

### Focal Participant Pre-writing Interviews

(Questions like the ones below will be asked orally to the Focal Participant after their formal writing assignments have been assigned during English 109 and 110 in Winter and Spring Quarters 2015. These questions are intentionally open ended and may lead to follow up questions for clarification over the course of the interview. Instructors will be free to not respond to any question that they do not wish to respond to.)

- (First interview only) What genres have you written before college? What has your experience with writing been like?
- What is this assignment asking you to do?
- Compared with past writing you've done, what is this assignment like? What is it not like?
- What process are you going to follow when you write this assignment?
- What purpose do you think this writing assignment serves? What do you expect to learn?

### Focal Participant Post-writing Interviews

(Questions like the ones below will be asked orally to the Focal Participant after they have written their Major Paper assignments for English 109 and 110 during Winter and Spring Quarters 2015. These questions are intentionally open ended and may lead to follow up questions for clarification over the course of the interview. Instructors will be free to not respond to any question that they do not wish to respond to.)

- What was the writing like that you did for this major paper?
- How was the writing similar and different to past writing including that done on the short writing assignments?
- Where did you find your topics and strategies for writing this assignment?
- Did this writing assignment feel more comfortable or less comfortable or the same as past assignments for this class?
- How does this writing fit the discourse of the class? The university?

Appendix II

4 peer reviewed source  
2 general sources  
1 primary source

1700 - 2000

(Hille et al, 2010)

Peer-Reviewed Source -

(Bystydziencki et al., 2015)

"High School is Not Too Late: Developing Girls' Interest and Engagement in Engineering Careers"

Jill M Bystydziencki, Margaret Eberhart, Maria Bruner

HIGH SCHOOL

"Results of research, funding, and effort have done little to bridge the persistently low numbers of African Americans, Hispanics, and Native Americans - as well as white women in fields such as physics, computer science, and engineering - ~~as well as ethnic women~~ in science, technology, engineering, and math (STEM) degree programs and jobs (National Science Board 2012)."

FREE Pathway Project

3-year intervention program designed to spark + sustain predominately low-income, Hispanic, and African American high school girls' interests (defined as expressions of curiosity, desire to learn, enjoyment and engagement in activities related to an area of study and employment) in engineering careers.

7-year long longitudinal study where followed

Found that although participants began high school w/ little or no knowledge of engineering, it was easy to develop their interest, which led them to seriously consider engineering as a college major and future career. Results indicate that interest was not enough. It was difficult, especially for those from low-income minority groups to actually pursue engineering as a major in college.

131 high achieving women (strong math/science grade)

The female recruits explore engineering (FREE) + Pathway Project  
10th - explorations of engineering  
11th - self-initiated engineering project  
12th - college mentoring

Colorado, Iowa, Ohio

2/3 low income  
2/3 first gen. potential college kids  
36% Latina  
12% Black  
7% multiracial  
33% white  
7% Asian  
4% Native American

1<sup>st</sup> year - explore

- 10<sup>th</sup> grade
- websites
- career fairs
- interactions w/ practicing engineers
- visits to workshops / colleges (engineering)

Participant observation  
+ informal interviews  
used to track  
first 3 yrs

2<sup>nd</sup> Year - 11<sup>th</sup> grade

- hands-on group engineering projects

3<sup>rd</sup> Year - 12<sup>th</sup> grade

- researching colleges
- finding funding
- applying to colleges

- Wiki-type website created to collect
- Blackberry phone to communicate

Post-highschool

- facebook group - weekly questions

### • Results •

Before FREE → 18% were even remotely considering engineering  
→ 82% knew little or nothing about engineering

2<sup>nd</sup> year (11<sup>th</sup> grade) → 57% considering career in engin.

Small scale engineering projects -

- ↳ expanded knowledge of engineering
- ↳ gave familiarity w/ technical language
- ↳ heightened interest in social entrepreneurial applications of engin.

all groups produced real product or storyboard

\* Rewarding experiences in exploring engineering  
leads to more curiosity and persistence of  
career in field \*

(College)

\* ↳ colleges, counselors, mentors play crucial role in  
transition from hs to college, by guiding to  
financial resources (targeted scholarships)

- ↳ minority engineering programs, SW & Engines w/ Black
- ↳ introduce to successful role models

need to take seriously self-doubt → lack of confidence

~~Wang et al. (2015)~~ (Wang et al.) Wang et al., 2015

\* "Math Achievement is important, but task values are critical, too: examining the intellectual and motivational factors leading to gender disparities in STEM careers"

HIGH SCHOOL

• Ming-Te Wang, Jessica Degol, Feifei Ye

↳ Women obtain higher course grades in math than boys and are just as likely to be enrolled in advanced math courses in HS, females continue to be underrepresented in some STEM occupations.

↳ Study assesses: (1) which intellectual + motivational factors in HS predict gender differences in career choices.  
 (2) whether students motivational beliefs mediated the pathway of gender on STEM careers (700 math achievement by using national longitudinal sample in US).

\* Found that math achievement in 12th grade mediated the association between gender ~~achievement~~ and attainment of a STEM career by the early to mid-thirties \*

\* Even though math achievement explained career differences between men and women, math task value partially explained the gender differences in STEM career attainment that were attributed to math achievement \*

\* Why it matters \*

define STEM pipeline

\* Difficult to initiate STEM trajectories after beginning college, due to the very constraining + prescribed curricula in STEM fields \* (Tyson, 2011).  
 therefore in order to prevent many talented and capable young women from opting out of the STEM pipeline, it is important to

\* Why is it different from others \*

identify the intellectual + psychological factors that surface in the elementary + secondary school years

\* Current reform efforts primarily focus on improving students exposure to + performance in advanced level math courses in high school as a way to address gender gaps in STEM.

- 4
- 6 Expectancy-value theory posits that achievement-related choices, such as occupation selection, are most directly influenced by intellectual competencies, ability self-concepts, and the subjective task value attached to the various options.
    - Subjective task value is comprised of interest value (liking or enjoyment), utility value (the instrumental value of the task for helping to fulfill personal goals), attainment value (the link between the task and one's sense of self, identity, and core personal values), and cost (what may be given up by making a specific choice).
    - Career choices made after # of options and various components (e.g., money, authority, social connection) are evaluated and identified as either fitting personal goals or not.
    - \* Gender differences in career choices reflect gendered differences in relative intellectual competencies, ability self-concepts, and the relative subjective task value of each option under consideration. \*
    - \* Intellectual aptitude, by itself, is not the dominant factor in the underrepresentation of women in STEM. \*
  - \* Predictors of academic achievement & actual involvement include expectations for success, confidence in one's abilities to succeed, and personal efficacy (Wigfield et al., 2006).
  - \* Both boys and girls who rank their math competence highly are more likely to enroll in advanced math courses and receive higher grades (Pajares et al., 2001).
    - ↳ Also, <sup>HS</sup> girls tend to rank their math competence lower than boys w/ similar math grades (Corcoran et al., 2001). Particularly interesting given that poor math self-concept or perceived competence may play a role in female underperformance in mathematics (Plink et al., 2006).
  - \* ↳ girls "liking" of math decrease on average as they move through adolescence to a greater extent than boys (Koller et al., 2001).

5  
 → women tend to put more value on jobs that allow them to help others and make meaningful contributions to society (Abele and Spurk, 2011) and math-intensive careers are usually viewed as being object-oriented (Webb et al., 2002) and less social (Hull et al., 2010).

- Method -

Non-STEM → fine arts, literature, business, education, social s.  
 STEM - mathematics, engineering, computer science, life science / medical science, + physical science

- Results -

\* Math achievement in 12<sup>th</sup> grade mediated association between gender and attainment of a STEM career by the early to mid-thirties <sup>at</sup> <sup>+ standardized math scores</sup>  
 → Women had lower math task values than men, and lower task value was associated w/ lower math achievement and lower likelihood of pursuing STEM careers.

\* \* Increasing math achievement is important for increasing women's representation in STEM, but achievement alone may not suffice. Achievement matters for STEM enrollment

\* Aside from promoting greater math achievement, current policy initiatives also need to target the development of math task values; encourages interest in math and its utility value. When women see STEM fields as useful, widely applicable, and viable career options they will be more likely to opt into them.\*

developmental impacts interventions that seek to increase math task value could be exponential compared to programs that target math skills alone. An increase in math task value will increase math achievement, but that increase in math achievement will also boost math task value.

Intro \*

early interventions vital!

by 12<sup>th</sup> grade decision to major in STEM is largely solidified (Matterse and Train, 2011)

increases in STEM course taking and achievement among females has not led to comparable increases in STEM workforce participation. → Teacher training for dupliating stereotypes and increasing female interest

## \* How to enhance women's math task value? \*

- ~~research~~ ~~shows~~ girls are more likely than boys to have both high verbal skills and high math skills (Wang et al., 2013)

↳ incorporating storytelling into math may not only capitalize on the strengths of girls' verbal skills but also increase female interest in math and science by making these subjects appear hands-on and practical.

- focusing on women's historical contributions to these fields and ensuring girls' exposure and access to female scientists + engineers as career role models (Steinke et al., 2007).

\*Young → may help combat pervasive math-gender stereotypes that affect girls' math identities as young as 6 years of age (Evencek et al., 2011)

- Emphasize altruism. Women view helping people and contributing to the greater good as highly important career goals (Su et al., 2009; Akete and Sprick, 2011), which are not pursued to the same extent in STEM careers.

STEM educators should place greater emphasis on demonstrating how female scientists can develop technologies and make discoveries that greatly benefit people's lives.

Also, National Academy of Engineering [NAE] (2013) recent efforts to alter public perceptions by communicating engineering is a helping profession that works on solving problems of human health and safety throughout the world.

Young  
and  
HS

"Math-Gender Stereotypes in Elementary School Children"  
 (Cvencek et al., 2011) University of Washington

Yang  
 Math-gender  
 stereo type  
 def

- "Girls don't do math" is a widespread cultural stereotype in the US; studies w/ both adults (Nosek et al., 2009) and children (Lummiss & Sterenson 1990) show that people in the US believe that math is stereotypically a male domain. (called the math gender stereotype)

- For math, girls self-rate ability lower than boys, but not for spelling. This is seen as early as the first grade, even w/ an absence of differences in math achievement.

- Math-gender stereotype found in American adults was also found to be present in elementary school children

- Elementary school girls showed a weaker identification w/ math than boys on both implicit and explicit self-report measures (math self-concept).

Suggesting that the math-gender stereotype develops early and differently influences boys' versus girls' self-identifications w/ math prior to ages at which differences in math achievement emerge.

- One study found that the activation of female identity (e.g. coloring a picture of a girl, holding a doll) significantly impeded girls' performance on a subsequent math test. (Ambady et al., 2001).

- gender identity develops before grades 1-2 and math-gender stereotypes emerge after gender identity

found that "math is for boys" was a common view shared by children from grades 1-5

College

\* In female college students, a balanced configuration of math-gender stereotypes, gender identity and math self-concepts is related to negative attitudes toward mathematics + lower performance on the mathematical portion of SAT.

Young

In elementary school, boys and girls score equally well on math achievement tests. Thus, gender differences in math self-concepts precede rather than follow actual differences in math achievement and may influence development on children's interest and effort and ultimately, achievement

General source:

⑧

"Ask the experts: How do we get girls into STEM?"  
Phoebe Parke, 2017

- 1/7 engineers are female, only 27% of all CS jobs are held by women
- No employment growth in STEM jobs since 2000. <sup>→ Forbes</sup>
- 12% CS grads in 2011 were women

↳ Certain toys and games help young children develop spatial logic and other analytical skills critical to science, STEM.  
(Developer)

↳ Stimulating toys for girls. Introduce little girls to spatial + structural thinking skills at the earliest stages of development.

↳ Introduce girls early to role models of other women in STEM

↳ "Leaky Pipeline", create opportunities for success, and safe environments in which to fail  
change → "this is hard, I can't do it" to "I can try another way"  
- Chain of mentors (passed down)  
- hands-on, real-world problem-solving activities to show STEM is relevant and fun.

↳ early and positive exposure makes an impact.  
Karen Harting, SWE

↳ Self-confidence + Unsatiable curiosity = key to it all

↳ Role models: Prove to young girls that there is indeed a path for them to tread by telling the stories of the women in history who often go unmentioned

"Generation STEM: What girls say about Science, Technology, Engineering, and Math" 9  
 a report from the Girl Scout Research Institute

(Medici et al. 2012)

Women's representation is low across the pipeline, from interest and intent to majoring in a STEM field in college to having a career in a STEM field.

- ↳ 74% of HS girls in study were found to be interested in STEM subjects in some form.
- ↳ Girls who are interested in STEM are high achievers who have superior adult role models
- ↳ Perceived gender biases are still high for girls
- ↳ African American / Hispanic girls have high interest in STEM, high confidence, and a strong work ethic, but have fewer supports, less exposure, + lower academic achievement than Caucasian girls.
- ↳ Research points to cultural and social stigmas about math achievement in the U.S that prevent both U.S.-born Caucasian + underrepresented minority girls and boys from achieving their full potential in this subject area (technology, computers, engineering, and math).
- ↳ Girl Scouts reach 2.4 million girls ages 5-13, making this organization uniquely positioned to address gender equity in STEM education and enrichment.
- ↳ College graduates (57%), master's level grad (60%), and workforce (48%) are women
- ↳ 20% of engineering, computer science, and physics degrees are held by women
- ↳ HS girls + boys perform equally well in math and science. HS girls earn more math and science credit than do boys and girls 6-12's, aggregated across math and science classes, are higher than boys. Boys tend to do better on standardized tests though, such as the SAT + ACT.

↳ girls are more likely to give up when the material is so difficult and to take themselves out of pursuing the field compared to boys w/ the same abilities (10)

Middle school  
→

↳ Girls start losing interest in math and science during middle school.

College + beyond  
→

↳ College freshmen major/career interests show that on average 20% of young women intend to major in a STEM field, compared to 50% of young men.

↳ 20% of female engineering graduates, only 11% are practicing engineers

↳ Although interest in STEM is high, few girls consider STEM their #1 career choice (13%)