A Mixed Method Study

on Students' Experiences in the Selection of a Dissertation Topic

by

Jing Xia

A Dissertation Presented in Partial Fulfillment
of the Requirement for the Degree
Doctor of Philosophy

Approved April 2013 by the
Graduate Supervisory Committee:

Paul Kei Matsuda, Chair
Mark James
Claire Renaud

ARIZONA STATE UNIVERSITY

August 2013

ABSTRACT

The current research examines the influence of disciplines, advisors, committees, language, culture, and previous experiences in students' search and selection of dissertation topics, as well as whether and how students react to those influences during this process. Invention has been an area of research for rhetoricians for centuries, but most modern research focuses exclusively on the pre-writing process in first composition classrooms (Young, 1976).

The current research collected survey and interview data from second- and third-year Ph.D. students in natural sciences, social sciences, and humanities at a large research university in the United States. 80 second- and third-year Ph.D. students completed an online survey; 11 students and four of their advisors participated in a semi-structured interview.

The results demonstrate that the majority of students spent over three months in the selection of dissertation topics, and the humanities students tended to spend longer time in this process than social sciences or humanities students. Additionally, students have much in common in their perception of the criteria they would use in the selection of dissertation topics, and those criteria are similar to what previous researchers (Isaac, Koenigsknecht, Malaney, & Karras, 1989; Kozma, 1997; Sessions, 1971) have identified. However, when it comes to the actual selection experiences, the interviews show that

students do not necessarily apply those criteria rationally. Moreover, disciplines appear to have an overarching effect on students' topic selection. Natural sciences advisors appeared to have more direct involvement in students' topic choice than advisors in social sciences or humanities. The linguistic and cultural backgrounds of the eleven doctoral participants were not found influential in their selection of dissertation topics. Finally, although Ph.D. advisors generally have a good understanding of students' academic progress, their knowledge of the students' personal and professional concerns may differ, and the latter knowledge is crucial in their advising on students' dissertation topic choice. The current study suggests invention in the scholar and researcher level is significantly different from that of first-year composition classrooms. The successful invention of dissertation topics is indispensable of the influence of disciplines, programs as well as the intellectual and practical support students can receive.

ACKNOWLEDGEMENTS

I am extremely lucky to have met a number of excellent professors, peers and friends during my doctoral study. First and foremost, I am deeply indebted to my advisor and mentor Dr. Paul Kei Matsuda for his inspiration, support, trust and understanding. In retrospect, I know I have experienced two “paradigm” (borrowing from Kuhn, 1970) shifts in my disciplinary enculturation—from the positivist stance in foreign language education to the formal perspectives on linguistic phenomena, and to the interpretivist orientation in writing research. I was not aware at all when and how these shifts took place within me. I only felt defeated and lost when that happened. It is during these times that I am most grateful for Dr. Matsuda. He is incredibly interdisciplinary and he know exactly where I got lost. He will then give me the right prescription that I need, step back and wait aside, leaving me enough space and time to digest his suggestions, finger out my whereabouts and walk out the jungle myself.

I am extremely grateful for my committee members Dr. Mark James and Dr. Claire Renaud. I want to thank Dr. James for his insightful advice, support, understanding and flexibility throughout the dissertation project. I am full of gratitude to Dr. Renaud for her explicit guidance, positive influences, consistent support and generous sharing of tools, files, and resources. I truly felt fortunate to have Dr. James and Dr. Renaud on my

committee, offering me valuable advice on my dissertation, job searching, as well as many other projects.

I want to thank Dr. Elly van Gelderen for helping me to navigate in the foreign and formidable ASU system at the beginning, introducing me to the field of theoretical linguistics, and supporting me in numerous ways throughout my education. I am grateful for Dr. Madeline Spring's funding supports, teaching and research opportunities. I truly enjoyed working with a group of interesting and supportive friends in the Chinese program at ASU: Jie Zhu, Fannie Tam, Mia Segura, Jinglin Chen, Ye Han, Ryan Robbins, and Aaron Fanello.

I also want to thank all the student and advisor participants of the current study. Without them, this project would not be possible. I am very grateful for Matthew Hammill who participated in the trail interview, helped me with analyzing data and gave me valuable advice on many issues. My special thanks goes to Qin Yao for participating in the trial interview of this project, exploring interesting places every time we meet and get lost. I also want to thank Taimin Wu, Yuching Yang and Lianing Liu for their encouragement and companionship. I am immensely grateful for my lifelong friend Xiaoyu Chen for exploring every wild idea we have had since kindergarten, being the human subject for all my studies but fortunately never asked me to return the same favor and play the role of a patient. Thank you all!

At last, I want to thank my parents for always making themselves available to me despite the time zone differences, offering me whatever they can, standing by my side no matter what, and loving me more than themselves. I wish I can be as reliable and accessible to them as how they have always been to me.

TABLE OF CONTENTS

CHAPTER Page

CHAPTER Page

CHAPTER Page

LIST OF TABLES

Table Page

CHAPTER 1

INTRODUCTION

Background

In 2008, I came to the United States as an international student from mainland China to pursue my Ph.D. in Applied Linguistics at Arizona State University. I already had a Bachelor of Arts degree in English and a Master of Arts degree in Foreign Linguistics and Applied Linguistics. As odd as this latter degree's name appears to be, I was several years into my doctoral program before I suddenly realized this was the origin of all of my later confusion and struggles. My Master's thesis investigated the effects of different writing modes on English writing quality at the tertiary level in China, which I now know is an aspect of applied linguistics.

Upon admission to Arizona State University, I was assigned an advisor in theoretical linguistics. She was a great professor, both in knowledge and in personality. However, there was one fundamental difference between her and me that I did not fully recognize at the time: I was not prepared mentally or academically to become a theoretical linguist. Although I was thinking about my dissertation topic when I entered the program and my initial plan was to graduate in three years, as soon as I experienced my first interaction with formal syntax, I knew something was wrong. But things were so

unclear then: I was not sure there was a problem, and if there was one, I did not know what it was.

During my first two years, I discussed with my initial advisor several possible topics I could look into for my dissertation. But somehow none of them really felt right to me and so I kept looking. The more I looked into papers on syntax, the more pain I felt. I had been in this mode for so long that I started to feel ashamed of myself. But I still hoped that one day I would have my “ah-ha” moment and then everything would turn out well—but that moment never came. Eventually, the increasing pressure for third-year students to settle on a dissertation topic forced me to give up that hope. I was not suitable for this area and I needed to change. With a great sense of shame and guilt, I informed my first advisor of my decision and my reasons for it. In fact, I felt so repulsed by myself that I did not even inform her in person in person: I emailed her my decision.

That was how my third year began. Abandoning two years of efforts in formal linguistics, I was in the middle of nowhere and not clear at all about where to go next. Professors and classmates all seemed so close, yet so remote, at the same time. I lingered on for a while, but somehow my final decision came quickly. I followed my intuition and decided to return to applied linguistics. My current advisor, an expert in many areas in applied linguistics, was extremely supportive and kindly accepted me. Not long after we began working together, the draft version of my dissertation topic became, “How to Find

a Dissertation Topic." Although there were some rough moments after I decided on this topic, in retrospect, the time prior to its emergence was far more unbearable.

When I searched the literature, I found that I was by no means the only student who felt lost and helpless during the stage of selecting a dissertation topic[1]. In the dissertation process, topic selection is widely considered the most challenging stage (Blanton, 1983; Bowen & Rudenstine, 1992; Gardner & Beatty, 1980; Heiss, 1970; Long, Convey, & Chwalek, 1985; Rudd, 1985). So many students are struggling with their dissertation that their unmet needs have created a thriving market for publishers. For example, many of these books on writing a dissertation by many authors (e.g., Bolker, 1998; Clark, 2006; Lunenburg & Irby, 2007; Mauch & Park, 2003; Roberts, 2010; Rudestam & Newton, 2007; Single, 2009), have published multiple editions.

Some dissertation writers may remember only the moment of the sudden dawning of the idea for their dissertation topic, which they shared with those who had not found one: "Don't worry! It will come to you." I have heard this well-intentioned advice many times, and it only increased my stress and anxiety: "Why hasn't it come to me? What if it never comes to me?" Cognitive scientist Kevin Dunbar (1997) found that any major conceptual change, like a discovery, is only the end result of "a series of small changes

---

[1] "Dissertation topic" in this project refers to a concrete research problem that the writer can use to conduct his/her dissertation research.

produced by a variety of different cognitive mechanisms" (Dunbar, 1997, p. 15). But because people often focus only on the final creative idea, the incremental steps involved in the cognitive processes are often lost or forgotten, and the discovery process becomes a mythical experience (Dunbar, 1997). In other words, the dissertation topic idea incubated in the writer's brain for a while before it declaimed itself as a sudden dawning moment.

Why is the selection of a dissertation topic so challenging? In a study on writers' discovery processes, Flower and Hayes (1980) pointed out that the rather glamorous experience of "Eureka, now I see it" obscures the painful process that writers have gone through. As they say, "Writers don't *find* meanings, they *make* them" (p. 21, italics in the original). What writers actually put on paper is only the end product of a complicated intellectual process: "searching memory, forming concepts, and forging a new structure of ideas, while at the same time trying to juggle all the constraints imposed by his or her purpose, audience, and language itself" (p.21). Although writers or instructors use words like "find your topic" or "search for the right word," there are no preexisting options available to writers. Rather, they need to explore and create them. The selection of a dissertation topic is, in a way, similar to first-year composition students' selection of topics, but the conceptual challenge is much greater and the process is more complicated. This dissertation project uses the words "select" and "selection" to be consistent with previous literature, but note that in this project, they are completely different from a

customer selecting an item in a supermarket; they involve “creating and selecting” in the conventional sense.

Topic selection or finding the right argument has been studied by rhetoricians since ancient times. Rhetoricians consider this the act of invention. There have been conflicting perspectives on the sources of invention. In LeFevre’s (1987) classification of existing theories, she found that the first perspective, including the views of Plato and Sigmund Freud, believes that the individual is the agent of invention; the second perspective, including that of George Herbert Mead, believes that two or three people interact to invent; and the last perspective, including that of Emile Durkheim, believes that invention is influenced by social collectives. LeFevre (1987) is also a proponent of the social collective perspective on invention, and she called for more research examining invention, not in isolated classrooms, but through examining how writers interact with other forces. Berkenkotter and Huckin (1995) studied how a biology doctoral student learnt to made new claims: it was a rhetorical task of arguing the news value of a claim against a background of existing knowledge. They also studied a rhetoric student’s choice of research topics while under the influence of his advisor. Prior (1991) studied students in a graduate seminar and how they interpreted and responded to writing tasks and demonstrated that graduate writing is a complex and multidimensional activity that occurs in a special personal, disciplinary, and social context. These studies suggest that

students' choices are relevant to their own disciplinary enculturation, including their subject knowledge, knowledge of conventions, expectations, and audiences, as well as the resources or constraints that are at work in their particular contexts. Each discipline contains various discourse communities within its own boundaries. The influence of discipline has been examined in students' dissertation writing (Casanave, 1992), as has disciplinary enculturation (Dong, 1998; Prior, 1991), and educational policies (Belcher, 1981; Gardner, 2008a). With regard to topic choice, there have been only a few studies (Isaac, Koenigsknecht, Malaney, & Karras, 1989; Kozma, 1997; Sessions, 1971) on doctoral students' and advisors' perceptions of dissertation topic selection criteria, but not so much research on whether disciplines actually affect students' ways of searching the topic idea. However, according to the theory on discourse community (Swales, 1990), members in different fields are expected to have inherited different values, subject knowledge, and conventions while searching for and selecting their research project. Hence, when they are selecting their research topic, including the dissertation topic, they are expected to be affected by their discipline while the ways in which disciplines impact the important choice of a dissertation topic remain to be explored.

Linguistic and cultural differences are among the better-known constraints imposed on nonnative speakers' disciplinary enculturation. Nonnative speaking students have been found to make more formal errors regardless of how long they have been

studying the language (Allison, Cooley, Lewkowicz, & Nunan, 1998; Angelova & Riazantseva, 1999; Casanave & Hubbard, 1992; Currie, 1993; Paltridge, 1997). On the other hand, there are mixed findings regarding whether their linguistic and cultural background will affect their disciplinary enculturation as well as linguistic expressions. For example, whereas Angelova and Riazantseva (1999) found that nonnative writers have difficulty adjusting to the rhetorical conventions of the American audience, Shaw's (1991) nonnative participants believed that science was a universal language, and their nonnativeness did not affect their acquisition of the language of science. Similarly, whereas Flowerdew (1999) found that researchers in Hong Kong preferred quantitative over qualitative methods because of linguistic concerns, Belcher and Hirvela's (2005) and Casanave's (2010) research indicated that nonnative students are highly motivated to use the qualitative method. Students' selection of dissertation topics is a case in point. Although rhetorical invention concerns with speakers'/writers' way of finding the right arguments, it can be addressed from the applied linguistics perspective as well. For example, in Flowerdew's (1999) study, his nonnative participants avoided selecting certain topics due to their concern of their limited academic English writing proficiency. For that reason, linguistic or cultural differences can be constraining factors in students' invention of the dissertation topic.

Statement of the Problem

The Ph.D. program is designed to prepare a student to become a scholar, and one of the central purposes of scholarship is the extension of knowledge (Council of Graduate Schools, 2005). The dissertation marks an important stage in students' development of their scholarly identity, and the sole criterion of the dissertation is originality: extension of knowledge. The dissertation project, like any other research project, starts with the critical invention of a topic. LeFevre (1987) stated that individuals invent under the influence of collective social forces. In the case of selecting a dissertation topic, previous studies have revealed the importance of discipline, the possible influence of linguistic and cultural factors, and the criteria that students consider important during the selection of a dissertation topic, but it remains to be explored how invention in this particular context works. My research explores the experience of selecting a dissertation topic by means of conducting a mixed-method study of native and nonnative, second- and third-year doctoral students and their advisors in natural sciences, social sciences, and humanities.

Overview of Chapters

This project consists of six chapters. The present chapter is the introduction where some background on the current study and the research problem are provided. Chapter 2 discusses the relevant theoretical influences on this study: rhetorical invention, the discourse community, and situated learning. It also explores empirical work that has

investigated the impact of linguistic and cultural differences and the advisor's role on students' dissertation experiences. Chapter 3 describes the research questions and the design of the project including research methods, participants, data collection, data analysis, and ethical considerations. Specifically, I describe the rationale for a two-step design and the role of the survey and interview data; the recruitment of different groups of participants; data collection and analysis.

Chapter 4 and Chapter 5 report on the survey and interview results respectively and present the findings on the five specific research questions listed in Chapter 3. Chapter 6 includes the conclusions and implications where I have demonstrated how my findings are relevant to previous literature, the limitations, and the possible implications that can be drawn from this research

CHAPTER 2

CONCEPTUAL FRAMEWORK

In rhetoric and composition studies, invention has long been used as a theoretical construct to describe the rhetorical art of "discovering the subject matter of discourse" (Young, 1976, p. 1). Classical and modern rhetoricians have proposed various theories to account for where and how speakers/writers have come to this discovery. For the purpose of the current study, LeFevre's (1987) theory will be adopted. One important strength of her theory is that she defines invention in its broadest sense, including both rhetorical invention and generic invention. LeFevre (1987) argued that "if rhetoric is truly to be regarded as an interdisciplinary, epistemic enterprise—as the creation and communication of knowledge through symbolic activity—then we must not only bring rhetoric to bear on other fields, but we must also bring those fields to bear on our understanding of rhetoric" (p. 5).

Based on a review of the literature, LeFevre (1987) identified three schools of thought on invention. The first school of thought includes Plato and Sigmund Freud, both of whom argued that invention comes from within. Whereas Plato believed that individuals invent by recollecting or finding innate cognitive structures, Freud believed that invention occurs through internal dialogue or dialectic with an internalized other. Nevertheless, they both regarded the individual as the agent of invention. The second school of thought

includes George Herbert Mead, who believed that individuals invent by interacting with those who allow developing ideas to resonate and who directly or indirectly support the inventor. In either case, two or more people interact to invent. The third school of thought originates from Emile Durkheim, a French sociologist, who believed individuals related to the features and forces that come from an over-arching society (LeFevre, 1987). LeFevre (1987) explained that Durkheim's work laid the foundation of the social collective perspective on invention; Durkheim argued that the causes of human behavior do not lie in "innate characters or psychological traits, or interpersonal relationships, but in the ways individuals are related to the features and forces that come from an over-arching society" (p. 81). LeFevre (1987) applied Durkheim's theory to invention and argues that this brings a completely different perspective: the social perspective. The extreme version of this perspective would stress that "invention comes from without" (p. 81) suggesting that the inventor, invention act, and the invention result are all socially constructed, and the role of the individual in the process is kept to the minimum. The collective invention perspective is helpful not in the sense that individuals are passive recipients of social forces, but that invention is "to a considerable extent influenced by forces originating in social culture" (LeFevre, p. 82). LeFevre (1987) concluded that this perspective offers opportunities for new research, including studies of how a writer's relationship to others affects the act of invention. The current project is devoted to this line of research.

LeFevre's (1987) exemplification of the collective perspective pointed out that both language and knowledge are social, arguing for the social nature of language by citing linguistic work such as the Sapir-Whorfian hypothesis (Hoijer, 1954) and langue vs. parole (De Saussure, 2011). Knowledge is socially constructed and objective and detached truth is not existent: "Whether or not something is accepted as a 'scientific truth' has a great deal to do with how its case is argued in the community of scientists" (LeFevre, 1987, p. 87). In line with this emphasis, the following review will focus on: 1) discourse community and the effect of language and culture; the purpose of this section is to show the characteristics of the discourse community and investigate whether language and culture affect students' disciplinary enculturation. 2) Ph.D. students and the advisor; this section illustrates the advisor's role and the effects of successful advising. 3) Dissertation writing research, as topic selection is an important part of the dissertation writing process.

Discourse Community and the Effects of Language and Culture

Most scientific disciplines are characterized by a shared paradigm shaped by accepted practices and traditions (Kuhn, 1970). Kuhn (1970) did not define the term "paradigm" in more depth, but he emphasized that students need to understand their disciplines' paradigms in order to become members of "disciplinary communities." One problem with the notion of a "disciplinary community" is that it does not account for the fact that not all scholars within the same discipline subscribe to the same set of conventions

or get published in the same venues (Harris, 1989). Another complication is that some scholars identify themselves as members of several disciplines (Herrington, 1985).

The term “discourse community” has gained attention since Swales’ (1990) monograph on genre analysis. For Swales (1990), the discourse community transcends the constraints of space, time, and even subject matter; rather, shared goals and beliefs are central to a discourse community. One person can be a member of different communities, and members of one community may use different genres (e.g. research articles, commentaries, conference presentations) to communicate with each other (Swales, 1990). Discourse communities are also characterized by variations in members’ areas of expertise (Swales, 1990). This view is in line with Lave and Wenger (1991), who are credited for the concept of “legitimate peripheral participation.” In their monograph, they stated:

> “Legitimate peripheral participation” provides a way to speak about the relations between newcomers and old-timers, and the activities, identities, artifacts, and community of knowledge and practice. A person’s intentions to learn are engaged and the meaning of learning is configured through the process of becoming a full participant in a sociocultural practice. This social process includes, indeed it subsumes, the learning of knowledgeable skills. (p. 29)

In line with these theories, doctoral students can be regarded as junior members of certain discourse communities. The Ph.D. provides a means by which to become a full

member of the discourse community in a chosen field. This line of empirical research explores whether language, culture, and disciplinary differences affect students' disciplinary enculturation. A large number of studies (Allison, Cooley, Lewkowicz & Nunan, 1998; Angelova & Riazantseva, 1999; Casanave & Hubbard, 1992; Currie, 1993; Paltridge, 1997) have shown that nonnative students encounter challenges when writing in formal English. For example, nonnative students may make errors in vocabulary, idiomatic expressions, and transitions. These studies called for a dissertation/thesis writing course. There have, however, been mixed findings regarding whether linguistic and cultural differences impact nonnative students' disciplinary enculturation beyond the formal writing process.

Some researchers believe that language and culture impact students' disciplinary enculturation. For example, in Flowerdew's (1999) interview research, 26 participants (mostly assistant professors in various fields) in Hong Kong reported that their English composition process was at times influenced by Chinese. They preferred writing quantitative papers because the wording was considered simpler and more straightforward. In a mixed-method study, Dong (1998) found that differences in language and culture affect students' disciplinary enculturation. In this study, 137 students and 32 professors responded to a survey and 25 advisor-advisee dyads participated in an interview. All of the participants were in natural science fields. Results suggested that nonnative students lacked

a social network and were unaware of the writing resources available to them. Participants struggled with various aspects of disciplinary writing, including citation, organization, logic, and idea presentation. Angelova and Riazantseva (1999) discussed the cultural dispositions affecting four graduate students from three countries: Russia, Indonesia, and Taiwan. This study indicated that nonnative students find it difficult to adapt to rhetorical expectations or ask professors for help (Angelova & Riazantseva, 1999).

On the other hand, some studies have argued that nonnative students are not necessarily held back due to differences in language or culture. For example, in a more focused qualitative analysis, Dong (1996) showed that the three nonnative natural science students were able to master proper citations in dissertation writing. These students' first languages and cultures did not hinder their acquisition of the dissertation genre. Advisors were shown to play a critical role in inducting students into the science community. Similarly, in Shaw's (1991) interview study, 22 nonnative students reported that their English composition strategy was not affected by their first language or home culture. Shaw (1991) pointed out that "if contrastive rhetoric does present problems that are not recognized, the interviewees regard science as a universal enterprise" (p. 199).

In Belcher and Hirvela's (2005) qualitative study of six nonnative doctoral students in education, the researchers found that nonnative students chose to use qualitative methods for various reasons, but none of them believed that their non-nativeness would

prevent them from being qualified qualitative researchers. Casanave (2010) also studied students in “soft” science fields: TESOL and Applied Linguistics. In particular, she studied her three female Japanese advisees’ choice of research designs, personal versus impartial language styles, and use of first-person pronouns. Although none of the students was a native speaker of English, they decided to pursue less conventional styles of dissertation writing with the support of their advisor.

In summation, students are expected to acquire the discourses of their own disciplines. Existing studies have produced mixed findings on the impact of language and culture on students’ disciplinary enculturation. Researchers have examined nonnative students’ command of citations, their composition strategies, and their preferred research methods, but no studies have examined the choice of a research topic. It remains to be seen whether language and culture affect this choice.

Ph.D. Students and the Advisor

The above-mentioned empirical studies demonstrate that good advising contributes to successful enculturation (Dong, 1996; Casanave, 2010). In the sociocultural theory of learning, one important element is called the zone of proximal development (Z.P.D.), which was proposed by Vygotsky (1978). The Z.P.D. refers to what a learner can achieve on his/her own, and what s/he can achieve with efficient help from a senior peer. There is a significant difference “between learners’ actual developmental level as determined by

independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86).

In *Ph.D. Completion and Attrition: Policy, Numbers, Leadership and Next Steps* (Council of Graduate Schools, 2004), the advisor's role is explained as follows:

> Although difficult to define, mentoring consists of a range of activities that potentially involves the entire institution and implies a level of personal interaction, guidance, and nurturing that goes beyond the required duties of a research advisor [King 2003]. (p. 13-14)

This quote clearly suggests that mentoring is "difficult to define" and it involves "a level of personal interaction, guidance, and nurturing that goes beyond the required duties" (Council of Graduate Schools, 2004, p.14). But what is "beyond" is not specified. Dissertation advisors play multiple roles in socializing students within the disciplinary community—although not all advisors are aware of those roles (Belcher, 1994). Gardner (2008a) studied 40 history and chemistry students' experiences in becoming independent scholars. The participants identified several stages in this process, including admission to a graduate program, qualifying exams, and proposal defense or dissertation. However, the researchers emphasized that the process involves socialization and personal growth rather than a simple progression of programmatic turning points.

Belcher (1994) revealed a mismatch between advisors' and advisees' conceptualization of the field (e.g., audience, goals, and objectives). Belcher (1994) studied three nonnative doctoral students' dissertation writing (two students from China and one from Korea majoring in Chinese literature, applied mathematics and human nutrition). There was a mismatch between the advisors' and the advisees' conceptualization of the field, especially for students who engaged in limited participation in their community of practice. For the more successful students, however, there was no such mismatch (Belcher, 1994). These two studies suggest that a focus on academics alone does not provide students with adequate support. Successful mentors initiate students into the scholarly community.

Some empirical studies (Bitchner & Basturkman, 2010; Jenkins, Jordan, & Weiland, 1993; Power, 1994) have examined the efficiency of advising and one persisting pattern emerged: Advisors and students have different perceptions of advisors' help. Powers (1994, cited in Dong, 1998) found that advisors spent more time working on nonnative students' dissertations and theses than they did on those of native graduate students. While faculty members generally reported giving students a significant amount of help, some students felt that they had received little help. Jenkins, Jordan and Weiland (1993) surveyed 176 engineering faculty members on their perceptions of writing in engineering education. The results indicate that writing is not an integral part of

engineering education and that there is a mismatch between faculty members' rating of the importance of writing and their actual practice working with the students. About 21% of faculty expected lower overall writing quality from nonnative students. While 11% were willing to rewrite major portions of theses written by native speakers, 21% were willing to rewrite major sections written by nonnative speakers; the advisors did not know how to help nonnative students write at an acceptable level. Bitchner and Basturkman (2010) came to a somewhat similar finding in a self-reported study (surveys and interviews). They found that advisors in different fields indicated a wide range of beliefs regarding providing feedback on dissertation drafts, yet their actual feedback to students was remarkably similar, and there was not much difference in the feedback given to native and nonnative students. In other words, there can be a significant difference between what advisors believe they have provided and what students perceive them to have provided.

One early work on advisor-advisee issues described the influence of the advisor on all stages of the student's Ph.D., including the dissertation stage and the selection of a dissertation topic. Bargar and Mayo-Chamberlain's (1983) theoretical work argued for the influence of advisors throughout students' Ph.D. education, including entry to the program, design of the program, oral exam, and dissertation. Advisors should facilitate students' selection of a dissertation, without becoming so involved in the process that the ownership of the project becomes questionable (Bargar & Mayo-Chamberlain, 1983). Berkenkotter

and Huckin (1995) told the story of Nate, a doctoral student whose interest in "invention" stemmed from his advisor, Richard Young. In fact, a number of Young's students chose to study invention-related topics. In this case the advisor did not force the students to select a research topic, but students were initiated into the conversation because of the advisor. Good advisors can be of great help to students' enculturation, especially that of nonnative students. In Dong's (1996) qualitative study, the researcher also found that those nonnative doctoral students who successfully grasped the art of citation in academic writing due to good advising that they received from their advisors.

In short, the above empirical studies show a) good advising are essential to students' full participation in the community of learning; b) advisors and students often differ in their perceptions of what advisors have provided; c) There is no standard for what successful mentoring has to include, but since doctoral students' learning is sociocultural in nature, purely academic advising may not adequately support students' growth.

Dissertation Topic Selection

Although invention has gained attention in modern rhetorical research (e.g., Bawarshi, 2003; Lauer, 1972, 2004; Young, 1976; Young, Becker & Pike, 1974), the focus remains on the first-year composition classroom, especially pre-writing strategies to help students generate ideas. This line of research has little bearing on doctoral students' lengthy search for a dissertation topic.

Another line of research involves psychology studies. Lauer (2004) provided a brief review of studies in this line, but, as psychologists themselves admit, people's responses in an experimental setting may differ greatly from how they respond in real life (Galotti, 2002). One influential theory in psychology that may be related to topic selection is image theory, which illustrates different perspectives in making a decision. As topic selection includes conscious and unconscious assessment of alternatives, image theory can be relevant.

Image theory (Beach, 1993, 1998; Beach & Mitchell, 1987; Mitchell & Beach, 1990) identifies three images that contain a person's goals and principles: a) the value image, which contains the decision maker's values, morals and principles; b) the trajectory image, which contains the decision maker's goals, and c) the strategic image, which contains the decision maker's plans to attain their goals. When people make decisions, they are expected to find the optimal combination of these three images, but the perfect combination does not always appear. This necessitates compromises, which can affect the quality of the decision.

Dissertation guides abound, giving advice on how to choose a topic. For example, Clark, Riley, Wood and Wilkie (1998) offered such advice to students:

A dissertation topic should sustain interest over the necessary period of time. People can come to hate the whole dissertation process and as a consequence lose

motivation, but, if a topic is chosen that retains the interest of the writer, there is a good chance of successful completion. (p. 23)

However, empirical studies on research topic selection are rare. So far, the only type of topic selection that has been the subject of research is the selection of a dissertation topic. There have been four studies in this line: Sessions (1971), Barr (1984), Isaac, Koenigsknecht, Malaneym, and Karras, (1989), and Kozma (1997). Sessions' (1971) project represents the first study in this area. He conducted a survey study of doctoral recipients and their advisors randomly sampled from the 1968, 1969, and 1970 volumes of *Dissertation Abstracts* and *Dissertation Abstracts International* in the fields of guidance, history, and chemistry. His goal was to identify factors that advisors and students would consider essential in selecting a topic, and investigating whether both parties gave equal weight to each factor. Sessions (1971) located the mailing addresses of 389 students in guidance, 33 in chemistry, and 56 in history. He also collected data from the advisors listed in those dissertation abstracts: 161 advisors in guidance, 32 in chemistry, and 36 in history. Sessions (1971) created a survey based on interviews from a few doctoral students who already had a topic, and then he administered the survey to all his participants. The survey was the same for the students and the advisors, except for some wording differences. Of the 704 surveys, 522 were returned. The findings indicated that a) advisors and students had a lot in common regarding the important and

unimportant factors in topic selection, b) advisors in guidance (the largest advisor group) and graduates in all fields voted strongly for the need to allow students to select their own topics, and c) there were disciplinary differences in responses. Guidance and history students were similar, but they differed from chemistry students. In the end, 15 factors were identified by the majority of students in guidance and history, with the top five as follows:

1. Potential for publication
2. A high candidate interest in the topic
3. Potential for providing experiences that would increase the competencies and knowledge of the candidate
4. In an area in which the candidate wants to become more expert
5. Candidate's familiarity with the topic's subject

Isaac, Koenigsknecht, Malaney and Karras (1989) also conducted a large-scale survey research among doctoral graduates. Ph.D. graduates in all programs were required to complete a survey before graduation. One section of the survey questions dealt with the criteria students used in the selection of dissertation topics. "Students' own preferences" were found to be the single most important factor. Other important factors included trends in one's field, students' own life experiences, advisor preferences, likelihood for publication, impact on job prospects, and availability of instruments.

Discipline differences were found between “hard sciences” and the other programs: programs in hard sciences were similar to each other and programs in other fields also patterned similarly. They also extracted three factors from the dozens of questions: a) program related; b) personal related; c) “politic” (i.e., national politics and one’s own life) related. The researchers ended the paper by posing the question to educators about how to best accommodate students’ needs.

Kozma (1997) refined Sessions’ (1971) questionnaire and administered it to doctoral students in two online programs: education and administration-management. Through initial interviews, Kozma (1997) identified 25 factors/questions. She then categorized them into four areas: faculty influence, financial concerns, personal issues, and professional issues. A match between each question and a representative phrase was specified. For example, the question whether respondents agree “the topic should have potential for institutional, governmental, or other funding” was labeled “funding.” Kozma’s goal was to compare faculty and students’ perceptions of the factors at play in topic selection, especially the role of the mentor.

Paper surveys were sent to faculty and students from two online doctoral programs. A total of 553 surveys (19 to education faculty, 19 to administration-management faculty, 189 to education learners, and 306 to administration-management learners, one returned for improper address) were mailed out

to those among the 900 students and 100 faculty members with a U.S. mailing address. The same survey was used for both students and advisors, except for some wording differences. Kozma (1997) found that independent variables (e.g., age, gender, department, and contact frequency with advisors) did not determine how students selected a topic. Kozma (1997) identified eight factors that students and advisors in the two distance learning programs considered to be important:

1. The topic should be professionally respectable.
2. The topic should be one in which one's interest is very high.
3. The topic should have potential for providing particular experiences that would increase the student's competencies and knowledge.
4. The topic should sustain the student's interest.
5. The topic should be one that could be completed in a reasonable length of time.
6. The topic should be one that could be completed with the expenditure of a reasonable amount of money.
7. The topic's probability of being accepted should be reasonably good.
8. The study should be a "sound" venture—one not likely to collapse and require a new start.

In regard to the role of advisors, Kozma (1997) found that students in online programs were relatively more independent than students in traditional programs that previous research had examined. This difference was attributed to the fact that learners in the online program valued independence, autonomy, and flexibility more than learners in traditional programs (Kozma, 1997). Kozma (1997) recommended allowing students in online programs more freedom in topic selection.

Barr's (1984) research is the only qualitative study on dissertation topic selection. Her goal was to explore a) the process of selecting a topic, b) the role of the advisor, c) the role of peer relationships, d) influences of the program structure, and e) influences of the particular academic field. Barr (1984) interviewed 17 students and seven mentors on topic selection in the fields of chemistry, English, political science, and sociology. She made a deliberate effort to limit her participants to white, male, non-foreign all-but-dissertation students to ensure that "differences found in the research process would not be influenced by differences in the students' sex, race or nationality. White male students were chosen because doctoral education has traditionally been masculine and Caucasian" (Barr, 1984, p. 82). In addition, she chose to focus on students whose goals were in academia or research.[2]

---

[2] Later, she found that she had included one student who had reported a non-academic goal, but decided to keep the participant, as she felt the difference did not affect the overall results.

Several aspects of Barr's (1984) study were unusual. In qualitative research, differences are generally embraced and described rather than eliminated. It is against the principles of qualitative research to impose restrictions on gender, age, race, language background, academic status, and career goals in participant recruitment. Besides, not long after Barr (1984) stated that she would only include students planning to work in academia after graduation, she said she accidentally recruited one student who wanted to work in industry in the research and decided to keep that participant. As a result, Kozma (1997) criticized Barr's (1984) participant selection as idiosyncratic. It is difficult to interpret Barr's findings because all her finding is a list of various requirements in different programs but she did not interpret how those requirements are related (or not related) to dissertation topic selection. For example, her results section includes the following elements affecting students' selection of a dissertation topic: program structure, advisor selection criteria, advisor's role, criteria of dissertation topic selection, and student growth and development. These elements are not logically prior to the selection of a dissertation topic; neither did she discuss how these elements are related to the dissertation topic selection process. Kozma (1997) made similar critique: "It is the belief of this researcher that Barr's study contains too broad a focus to adequately address any one of her research questions fully" (p. 59).

Three of the four studies (Isaac, Koenigsknecht, Malaney, & Karras, 1989; Kozma,

1997; Sessions, 1971) focused on standards that professors and students employ when evaluating a potential dissertation topic, while only one study (Barr, 1984) attempted to delve into the topic generation process. A number of insights have emerged: 1) not all students choose topics on their own, 2) students in the humanities and social sciences have relatively more freedom in selecting dissertation topics, 3) advisors play a large role in students' topic selection, 4) demographic factors alone cannot predict students' tendencies in topic selection, and 5) students and advisors are generally in agreement as to the criterion for a good dissertation topic.

Conclusion

This chapter reviewed existing literature regarding invention and Ph.D. education, two concepts of direct relevance to the current research problem: how doctoral students invent dissertation topics. In particular, this chapter discussed the social collective theory on invention (LeFevre, 1987), exploring theories of doctoral education and whether language and culture affect students' disciplinary enculturation. The chapter examined the multiple roles of advisors and different perceptions of mentoring, concluding with a review of related literature on dissertation topic selection. This literature review suggested the need to further explore this important topic through qualitative approaches.

CHAPTER 3

METHODOLOGY

Research Questions

This research aims at addressing the following five questions:

1. What kind of major tasks were completed by the dissertation topic selection stage?
2. What criteria do students perceive important in their selection of a dissertation topic?
3. What are the possible sources of influences in the process of selecting a dissertation topic?
4. How did the influences play out in the process of selecting of a dissertation topic?
5. What is advisors' assumption of their advisee's process of selecting a dissertation topic?

Design

This project consists of two phases: a survey and an interview. The first phase is designed to solicit survey responses on students' experiences and opinions in dissertation topic selection from a more diversified population. According to Dörnyei (2003), questionnaires are used to address three types of research questions—factual, behavioral,

and attitudinal—and they are particularly efficient in soliciting a categorized understanding of a phenomenon in a short amount of time. The survey for the current study thus focused on the following information: a) demographics, b) experiences, and c) opinions. Another purpose of the survey is to solicit participants for the interviews. At the end of the main survey, the respondents are directed to the interview invitation section where they can provide their contact information and that of their advisors on a voluntary basis. This design will ensure, even for students who provided their contact information, that their survey responses will remain anonymous.

The second phase of this project is to conduct interviews with the students and their advisors. Interviewing is a common method in qualitative studies. The purpose of the open-ended interview is not to get answers to questions, test hypotheses, or evaluate; on the contrary, qualitative researchers conduct interviews because they are interested in understanding the lived experiences of other people (Seidman, 2006). There are different types of interviews (e.g., survey interviews with preset, standardized, normally closed questions, and unstructured anthropological interviews), and the current project adopts the in-depth, phenomenological-based interview. In this approach, the researcher uses primarily open-ended questions to let the participant reconstruct his or her experiences of relevance to the dissertation topic selections. In order to investigate the topic selection experience, participants were requested to elaborate on their selection of a program, fields

of study, experience working with the advisor, and critical moments in developing the dissertation topic. Each student interview session lasted approximately one hour, and each advisor interview lasted for about 40 minutes.

In this study, both retrospective and prospective data are solicited. That is, students who have decided on their topic, as well as those who are in the process of developing their topic, are both invited for the interviews. The reason is that students change all the time, and the starting and ending points of the dissertation topic selection are hard to define. Instead of inviting final year students to recall their dissertation topic selection experience, the researcher decided to focus on second and third-year students. The advantage is that, according to most program handbooks at Arizona State University (ASU), these students face the official demand of selecting a dissertation topic. If the participants have selected a topic, their memories will be fresher than those of final year students, thus making the study more likely to yield rich data. If the participants have not decided on a topic, their thinking will be valuable as well, given that prospective data can be a valuable supplementary to retrospective data. Menard (1991) argues that combining both retrospective and prospective data can result in an enhanced understanding of the research phenomenon, as it allows the researcher to explore how past events influence participants' current activities and perspectives. A reward of $10 was put forward to encourage students' participation in the interview session. Advisors were not provided with any monetary

compensation because they are educators in the field and in a relatively better economic status than the students. Proposing a monetary reward for the advisors is likely to jeopardize their genuine interest to participate.

Survey Instrument

The complete version of the survey can be found in Appendix IV. The survey consists of four parts. Part I collects factual information on dissertation topic selection (Questions 1–7). This section has questions about whether students have selected a topic, how long it took them to select their topic, and who selected the topic. Part II is a consideration of the dissertation topic selection process (Questions 10–24). In this section, students are asked to rate on a scale of 1-10, with one being the least important and 10 being the most important. Table 1 summarizes the major questions in this section. Part III is an evaluation of the students' doctoral experiences (Questions 23–27). This section includes questions about the evaluation of their program and advisers. This section also contains some open-ended questions for students to give advice and comments for the improvement of their program and for future Ph.D. students in their program. Part IV is about background information (Questions 28–39), specifically each student's age, gender, ethnicity, and program. The demographic information was placed at the end to ensure that the participants devote most of their attention to responding to the other questions,

rather than being distracted by the demographic questions at the beginning (Dörnyei, 2003).

Table 1. Dissertation Topic Selection Criteria

Personal	Q10. Personal background
	Q11. Personality
	Q13. High personal interest
Professional	Q12. High academic interest
	Q14. Trend in the field
	Q15. Available instruments
	Q16. Data collection
	Q17. Publication potential
	Q18. Career opportunity
	Q23. Suggested by faculty
	Q24. Advisor's expertise
Logistics	Q19. Time required
	Q20. Money required
	Q21. Part of funded research
	Q22. Potential for funding

To ensure the validity of these survey items, I tested the survey among six students (two in natural sciences, two in social sciences, and two in humanities) before sending the survey to targeted participants. My trial participants gave me some suggestions regarding the clarity of wording. For example, they suggested putting "dissertation" in front of "topic" throughout survey to avoid possible confusion.

Survey Participants

The current study took place in the College of Liberal Arts and Sciences at a large research university in the United States. The college contains programs in three main disciplines—natural sciences, social sciences, and humanities—in 25 schools and departments.[3] The doctoral program often includes three main stages: coursework, qualifying exam, and the dissertation (Berelson, 1960; Heiss, 1970). However, the individualized nature of doctoral education makes it challenging to identify a cohort of students across all programs. According to the Council of Graduate Schools (2004), a cohort may be identified: a) in the first postbaccalaureate year, b) when officially admitted to candidacy, or c) upon completion of a required master's degree. Given the possible variations in all 25 schools and departments, I decided to focus on students who have enrolled in a Ph.D. program for two and three years, as most of them had completed their coursework during this time and were beginning to conceptualize the dissertation topic. The milestone tasks, such as the completion of coursework, the selection of an advisor, or the selection of topic are best understood as separate tasks only for administrative purposes. For the students, these tasks are interconnected and the boundary between them is not clear. Most students in their second or third year are either in the process of formulating their

[3] Information retrieved from https://clas.asu.edu/.

dissertation topics or have just finished their topic selection. Either way, their recollections of their dissertation topic experiences are more likely to yield a rich picture than those of students at other stages.

The researcher sent a cover letter (Appendix II) and the survey (Appendix III) to 509 second- and third-year PhD students, and 107 were returned (return rate: 21.02%). As discipline has been shown as an important factor in survey studies (e.g., Berelson, 1960; Hoffer & Welch, 2006; Isaac, Koenigsknecht, Malaney, & Karras 1989; Sessions, 1971) on doctoral education, I kept only responses from those who provided the program information. In the present survey, 80 students identified their program.

Appendix IV lists the Ph.D. programs of the participants and the corresponding discipline in which they are classified for the present project. As there is no official way to classify these programs, my attempt could be biased to some extent. The classification is based on my search of the program websites of the participants' and my interpretation of their answers to the "field of study" (Question 34) in the survey. For example, there is a program called *Biology (Biology and Society)* (Parentheses in the original). It looks confusing but the "field of study" of the participant says: "History of Science; Science & Technology Studies." Based on such information, I then decided to put this program into social science. Among the 80 respondents who identified their program in the survey, 42

(52.5%) were from natural sciences, 28 (35.0%) from social sciences, and 10 (12.5%) from humanities.

The current survey respondents are well-balanced in terms of gender, first language, and ethnicity, but not so much with age. Among all respondents, 34 (42.5%) were male and 46 (57.5%) were female. 55 (68.75%) were native speakers, and 25 (31.25%) were nonnative speakers. In terms of ethnicity, 56 (70.0%) were White, 18 (22.5%) were Asian, 8 (10%) were Hispanic, 2 (2.5%) were American Indian/Alaskan Native, 1(1.25%) were Black, and 1(1.25%) were Hawaiian/Pacific Islander. Students' ages ranged from 24 to 66, but the majority of the respondents (73.75%) were between 23 and 33 years old.

Survey Analysis and Report

The survey results are used to address the first three research questions. 80 students' responses were analyzed. SPSS 21 was used to calculate the descriptive statistics indexes—mean, median, and standard deviation in this study—for research questions 1 and 2. For research question 3, non-parametric Kruskal Wallis Tests were used. There are two major reasons for running the non-parametric analysis: 1) only ten participants in humanities completed the survey; and 2) the ratings of the three disciplines were not in normal distribution.

Interview Participants

Eleven students showed an interest in the study, and I included all of them for the interviews. All of the students, except Lidan, had earned a Master's degree before entering the Ph.D. program. Although some of their undergraduate and Ph.D. programs were in completely different fields, all participants' Master's and Ph.D. programs were in the same field. There was either no gap or a one-year gap between the Master's and Ph.D. programs for all of the interview participants. In other words, they applied for a Ph.D. during the last year of their Master's program or right after their graduation. Table 2 is a breakdown of the demographic information of the student interviewees.

Table 2. Student Interviewee Information

Name	Age	Gender	Native language	Ph.D. starting year	Program	Dissertation topic selection status	Left advisor contact or not
Rebecca	32	F	English	2009	History	Decided	Yes
Aaron	31	M	English	2010	Literature	Likely	Yes
Ting	25	F	Chinese	2009	Literature	Decided	Yes
Karen	52	F	English	2009	Sociology	Likely	Yes
Jennifer	29	F	English; Spanish	2009	Justice and Social Inquiry	Decided	Yes
Gabby	53	F	English	2010	Environmental and Social Sciences	Decided	No
Mike	38	M	English; Hungarian	2009	Math Education	Decided	Yes
Lidan	24	F	English; Shanghai dialect	2010	Biology	Likely	Yes
Emily	28	F	Polish	2009	Biochemistry	Decided	No
Zhang	27	M	Chinese	2010	Geological Sciences	Decided	No
Cory	28	M	Arabic	2010	Geological Sciences	Decided	Yes

Notes: 1. Lidan is the only student who went to a Ph.D. program right after her undergraduate graduation.

2. Kelsey and Lidan are Chinese Americans, but Kelsey's name looks quite American, while Lidan's name consists of only the Chinese pinyin. To be consistent with their original names, I used different kinds of pseudo names to represent them.

3. To keep confidentiality, the program names listed here do not fully correspond to the exact name of the program, but they are similar enough to represent the actual name for this study.

Table 3 displays the information of the advisors. Ting, Gabby, Emily, and Zhang did not leave their advisors' contact information. Ting and Zhang reasoned that their

advisors were too busy to be bothered by them for additional requests. For Gabby and Emily, it was easy to infer that they did not like their advisors. Mike, Jennifer, and Rebecca left their advisors' contact information, but their advisors did not respond or declined the interview requests.

Table 3. Participating Advisor Information

Advisor	Gender	Years working with doctoral students	Advisee
Hamilton	M	34	Aaron
Morgan	F	34	Karen
Steven	M	24	Lidan
Philip	M	17	Cory

Interview Instrument

The eleven student interview participants were requested to fill in a background survey (see Appendix III) about their demographics and participate in two one-hour interview sessions. The four advisors are requested to participate in one 40-minute interview. Students were provided a $10 incentive for each session, but no incentive was provided to the advisors. It would make more sense to invite advisors to participate out of their genuine care for doctoral education, which is one of the most salient implications of the current research.

All interview questions (Appendix IV) were open-ended to increase a participant's role in the interview. Seidman (2006) emphasizes that "the key to asking questions during in-depth interviewing is to let them follow, as much as possible, from what the participant is saying" (p. 81). Participants were thus informed in advance that

they could skip any questions whenever they felt uncomfortable and elaborate on any questions whenever they want. No leading questions were asked. My questions were mainly a follow-up of their responses to ask for elaboration or clarification. For the student interviews, the questions were mostly about their experiences in selecting the dissertation topic and the critical moments in their educational experiences. The term "critical moments" was deliberately left undefined for the purpose of letting participants decide what the critical moments in their education were. In the actual investigation, participants usually chose the moments where they made big decisions such as the doctoral program, the field of study, or the dissertation topic. These are all important insights helpful for the understanding of the current research questions. For advisor interviews, I asked them about their general dissertation topic advising experience and the case of that particular student. I also asked advisors if they noticed any critical moments in the student's search and development of the dissertation topic. Advisors were also informed in advance that they were free to elaborate or skip any questions they did not want to answer. I also tried not to impose any categories in the advisor interview and mainly used follow-up questions to help the advisors clarify or elaborate their responses.

Although advisors and students both knew I will interview their counterparts, I assured them that my conversation with them will be kept confidential. That is, the advisors would not know their advisee's response, and vice versa. The strength of this

approach is that it eliminates the existence of presuppositions in interviews. As I have eleven students and four advisors, the four advisor–advisee dyads were interviewed in a different order: two advisor interviews were in the middle of the two student interviews; one advisor interview was after the two interviews of his advisee; and one student only participated in one interview and her advisor's interview was right after hers. The major reason for interviewing them in this order was to accommodate the schedule of the participants, especially the advisors, as professors are known to be extremely busy during the semester. But as far as interview time is concerned, the order of interviewing the four dyads does not seem to matter much, as I made no attempt to verify the student's response in the advisor interview or the advisor's in the student interview. Additionally, if there were any mild influences of interview order, these four dyads were interviewed in a different order; therefore, the order effect should be cancelled out.

In terms of the actual interview process, I made one adjustment as the interviews continued: At first, I followed the questions on the interview guides religiously, including the exact wording and the exact order of questions. After the first three interviews (Gabby, Emily, and Ting), I noticed students' prior experiences played a significant role in their dissertation topic selection. This was completely understandable. But according to the interview guide, I was supposed to ask the dissertation topic first, then their previous experience. When participants were recalling these stories, sometimes they

needed to go back and forth, which seemed confusing. I decided to adjust the order of interview questions to help the participants to recall their previous experiences chronologically. That is, prior to the question of critical experiences in the Ph.D. program, I asked them to provide some examples of their critical experiences before their Ph.D. admission. Although not all students had any critical experience prior to the Ph.D. admission, following the chronological order did have a facilitating effect on the flow of participants' recounts. In terms of confidentiality, the interviews were recorded through the recording device in my personal laptop and the videos were saved in an inscribed folder.

My Role as a Researcher and Ethical Considerations

In qualitative research, the role of the researcher needs to be taken into account in interpreting and understanding the qualitative data (Weiss, 1994). Weiss (1994) cautioned that an interviewer may be regarded as an insider for some participants and an outsider for others. Like all other qualitative studies, I cannot acknowledge my interview data are free of the influence of me—a young female Chinese doctoral student—being the researcher. It is possible that if the interviews were conducted by another researcher, the interview data would appear different. However, I do not think there will be that much of a difference, as my interview participants are diversified enough to reduce researcher bias or effects. I may be an insider or outsider for some students in some aspects, but clearly my role will change as participants or areas of concern change.

I also want to acknowledge here that I used Chinese to conduct three of the four interviews with the two Chinese students (Ting and Zhang). I used English for my first interview with Ting. My justification at that time was to use the same language for all participants. However, after that first interview, I realized my participants may feel uneasy talking to another Chinese person in English. In addition, I knew Zhang had been in the United States for only three semesters, and therefore, it should be simpler for him to communicate in Chinese. The major reason for the language change was to best accommodate my participants. Of course, I have to acknowledge I could not possibly

speak the first languages of every participant. Yet, the whole purpose of an interview is to *understand* another's stories: "At the heart of interviewing research is an interest in other individuals' stories because they are of worth" (Seidman, 2006, p. 9). Because of that, it is the quality of the stories that I should care most about. In the case of the two Chinese-speaking participants, if speaking their and my mother tongue will be helpful for them to share their stories, I believe that as a researcher, I should enable this. The side effect of using the mother tongue is that I have to translate the quotes into English in reporting. For the Chinese quotes integrated in this dissertation, I invited another Chinese-English speaker to verify my translation to ensure its quality.

I am also aware of the dilemma faced by qualitative researchers between protecting the identities of participants while sharing their stories in public. To ensure a good balance between the two, I used pseudonyms and removed the personal traits that could be associated with a particular participant. In reporting the data here, especially students' areas of research, I used the larger categories in their fields rather than their specifics.

Data Analysis and Report

The first step was to transcribe the interviews. I kept all of the original information, including grammatical errors. For the three Chinese interviews, I kept the texts in Chinese. For the sake of efficiency, I only translated the quotes into English when

they were selected for use in the dissertation. After that, I followed the instructions and principles discussed in Grounded Theory (Glaser & Strauss, 1967; Strauss & Corbin, 1998), an established orientation of analyzing qualitative data in social sciences and health studies. Glaser and Strauss's (1967) theory has a strong impact on various qualitative methodology guides (e.g., Richards, 2009; Seidman, 2006). In this research, I plan to highlight a few principles of the theory, including the following: 1) Open-coding—the researcher should read the transcripts with a fresh mind, code the data without any preexisting themes, systematically assemble, assess, and analyze the data to make sense of them; 2) Axial coding—refers to the constant comparison of incoming data with previous data as well as improving the quality of existing themes; 3) Theoretical sampling—different from statistical sampling, theoretical sampling requires the researcher to continue collecting data until a "saturation" point when incoming data no longer suggest any additional themes; in other words, the number of participants is not a fixed number, but rather, it is closely related to the complexity of the research problem; and 4) A balance between etic (researcher-originated) and emic (participant-originated) perspective.

In my practice, I followed these principles closely. I made an effort not to impose any categories in the coding, and I included all volunteer participants in my study. Eleven students and four advisors appear sufficient in answering my research questions. I tried to

make the most sense of students' stories, yet I focused more on their experiences relevant to their dissertation topic selection experience. For example, some of them talked about their experience writing their first academic paper and how their advisor helped or did not help them. This is important information to understand their academics, yet not so relevant to their dissertation topic selection experience. In scenarios like this, I chose not to include them in the themes for the current purpose.

As qualitative data analysis is a long, recursive and emerging process, my theme generation has undergone a few changes as well. At first, I identified the following five major themes:

1. Previous research experience
2. Reasons for choosing the current Ph.D. program
3. Reasons for choosing a dissertation topic
4. Major influences in dissertation topic selection
5. Suggestions for future dissertation writers

I then found that the last theme, "suggestions for future dissertation writers," was not directly related to my research question, as data under this category were about students' doctoral educations (e.g., start early; find a good advisor). These suggestions were very valuable, yet they were not helpful to understand the experience in students' selection of dissertation topics. I then started to realize dissertation topic selection and doctoral

education may be closely connected, and for some students, they may even have the same meaning. I then decided to remove the last theme and use the data under this category as evidence to verify "major influences in dissertation topic selection." Another change I made is in the first category, which I found to overlap the fourth one. "Previous experience" can be one major influence in students' dissertation selection process. I thus removed the first theme and merged the data under this category to the fourth one. The eventual coding scheme for individual stories is the following:

1. Reasons for choosing the current Ph.D. program
    a. Advisors
    b. Committees
    c. Coursework
    d. Dissertation guides
2. Reasons for choosing a dissertation topic
3. Major influences in dissertation topic selection

I originally invited an applied linguistics colleague who has ample experience in coding qualitative data for the data analysis. The first time, I asked him for independent coding of three scripts. After reading the data, he asked to use my initial themes for his coding. I handed it to him and we met twice over a month. We agreed on the gist of individual stories and the key factors leading to students' enjoyment or resentment of the topic;

however, we thought it might be better to present the stories individually rather than extracting themes, and to present quotes below individually, as the stories were so inherently connected that dividing the whole stories into pieces would not be helpful for the understanding of the experiences. On the other hand, when presenting the stories separately, overarching themes for a group of students may emerge. I then decided to do the analysis myself. Validity in this analysis is thus best evaluated through the coherence and plausibility of individual stories. After I finished writing individual stories, I read them over to check if they were plausible. Another area that my colleague and I both discovered was that students' dissertation topic selections were related to their selection of doctoral programs. So when I was rereading the stories I wrote for each participant, I crafted a brief summary for each individual covering three areas: student's background, the selection of the doctoral program, and the selection of the dissertation topic.

After I finished writing the summaries, I noticed "disciplines" was the overarching influence for all participants. For example, different programs have different policies on how advisors were selected, how a dissertation topic was selected, or what constituted a qualifying exam. Students in the same discipline—natural sciences, social sciences, or humanities—are influenced by similar program policies. Discipline's influence was more embedded and institutionalized than various subcategories under "major influences." I then decided to analyze students' stories discipline by discipline.

After I put together a student's topic selection story by discipline, I noticed students' topic selections are affected by similar discipline policies, yet the students can react very differently even given similar resources and restraints. Three major themes emerged for students in the three disciplines:

1. Natural sciences: Confrontation, conformation, and strategic planning
2. Social sciences: Self as the source of inspiration
3. Humanities: Negotiation between one's preferences and faculty strength

Validity and Reliability

Seven students shared their advisor's contacts, but only four advisors actually participated in the interviews. I used the advisors' data to triangulate the students' accounts of their experiences. This is the strategy used to ensure the validity of the original data.

In data analysis, I used the holistic approach. Rather than extracting quotes to fit into several themes, I presented the stories one by one. This does not mean I made the decision without checking it with other researchers. As I mentioned earlier, I invited another researcher to analyze the story with me. Although I decided the three final themes on my own, we agreed on presenting the stories individually, the gist of the three participants' stories, and the importance of two decisions: 1) Ph.D. program choice; and 2) Dissertation topic selection. Validity in this case is more conceptual than numeral. It is

reflected in these agreements. As to my judgment of the gist of individual stories, we agreed with each other on the gist of three out of eleven participants' stories.

As holistic presentation is employed in the report of the data, plausibility of individual stories is an important indicator of the quality of the stories. I read the stories more than once, and I checked the plausibility every time to ensure my selection is as loyal as possible to students' interview responses.

CHAPTER 4

SURVEY RESULTS

Research Question 1: What Kind of Major Tasks were Completed by the Dissertation Topic Selection Stage?

Students in the second and third years face a series of tasks, including selecting a dissertation topic, chair, and committee, and completing the qualifying exam, as well as defending their dissertation proposal. All these major tasks are related to the dissertation topic choice. In this sense, questions 2–8 are designed to explore a student's completion status of these major tasks. Forty-two students in natural sciences, twenty-eight students in social sciences, and ten students in humanities have completed these seven questions.

Question 2-6 are about whether students have selected a dissertation topic (Question 2), a dissertation chair (Question 3), or all committee members (Question 4), and whether they have passed the qualifying exam (Question 5) or the oral defense (Question 6). The purpose of these questions is to explore students' progress in the dissertation topic selection stage. 42 participants in natural sciences, 28 in social sciences, and 10 in humanities completed these five questions and the result is reported in Table 4.

Table 4. Completion of the Major Tasks

	Sciences		Social Sciences		Humanities	
	Number	**Percentage**	**Number**	**Percentage**	**Number**	**Percentage**
Q2: Selection of the dissertation topic	37	88.1%	24	85.7%	5	50.0%
Q3: Selection of the dissertation chair	24	57.1%	14	57.2%	4	40.0%
Q4: Selection of the committee	28	31.0%	5	17.9%	0	0.0%
Q5: Completion of the qualifying exam	6	7.1%	2	7.1%	0	0.0%
Q6: Completion of the proposal defense	26	61.9%	20	71.4%	3	30.0%

These statistics suggested a few trends: 1) Dissertation topic selection and qualifying exams are two questions receiving higher affirmative results. This suggests that second- and third-year students are the right group of participants for this research; over half of them have passed the qualifying exam and most of them have selected the dissertation topic. 2) In natural sciences and social sciences, the majority of the participants had selected their dissertation topics at the time of the survey, but only half of the humanities students had selected their topics at this time. This result suggests that humanities students may spend a longer time in their Ph.D. than natural sciences or social sciences students. 3) More students have selected their dissertation topic than those who have selected the dissertation chair, suggesting that at least some students have selected the topic without an advisor. As this trend is consistent in the three disciplines, this means students in all fields,

including natural sciences, have used their agency in dissertation topic selection. 4) Only a small percentage have completed their committee selection by the time they selected a topic, suggesting the weak influence of committee in topic selection; however, this percentage is higher for natural sciences students (31.0%) than for social sciences (17.9%) or humanities (0.0%). This suggests natural sciences students are faster in their program progress, as more of them have completed the committee selection than social sciences or humanities students during the same stage. These findings provide further evidence for the existing report (Council of Graduate Schools, 2005) that time to graduate is shortest for natural sciences students and longest for humanities students, as more natural sciences students have completed three major tasks—topic selection, dissertation chair selection, and the qualifying exam—than their counterparts in social sciences or humanities at the same stage.

Now that I have shown the field differences in the completion of major tasks, it is still not clear which task was completed first. For example, students could have selected both their topic and their advisors at the time of the survey, but the degree of agency they have in dissertation topic selection is not clear; in other words, whether they have decided on their topic first then the advisor, or the other way round. The order between the selection of dissertation chair, dissertation members, and the dissertation topic is a good indicator of the role of chair or committees in the selection of dissertation topics. To investigate this,

Question 7, including three sub-questions, is included. 42 students in natural sciences, 26 in social sciences and 10 in humanities responded to these two questions.

Results suggested that: For natural sciences students, 71.4% (30 out of 42) of them stated they have selected the chair before the dissertation topic, while 31.0% (13 out of 42) stated they have selected all of the committee members before they selected the topic. For social sciences students, 61.5% (16 out of 26) said they have selected the dissertation chair before the dissertation topic, and 16.4% (4 out of 26) suggested they have formed the committee before they selected the topic. For humanities students, only 30.0% (3 out 10) said they have selected the chair before the topic, and 20% (2 out of 10) said they have formed the committee before selecting the dissertation topic. As most students selected the topic before the formation of the committee, the influence of committee on students' topic selection is weak. This is not surprising, given that only a small percent of them have answered yes when they were asked whether they have selected all of the committee in Question 4. What is worthy of mentioning here is the disciplinary difference with regard to the order between dissertation chair selection and dissertation topic selection: 30 out of 42 (71.4%) students in natural sciences, 16 out of 26 (61.5%) students in social sciences and 3 out of 10 (30.0%) in humanities selected the chair before the dissertation topic. This suggests dissertation chairs are likely to have a stronger influence for natural sciences students than social sciences or humanities students, as more students in natural sciences

selected the chair first but not so many students in the other two disciplines. Nevertheless, dissertation chair's influence in social science students' topic selections appear clearly documented: 61.5% of social sciences respondents chose the dissertation chair before the dissertation topic. What is unexpected here is that only 30.0% of humanities students selected the dissertation chair before the dissertation topic, suggesting a high chance of humanities students' selections of the topic on their own. In other words, humanities respondents have exerted much stronger agency in dissertation topic selection than students in natural or social sciences.

The previous questions have investigated a student's progress by the time of dissertation topic selection and the degree of student agency in topic selection. What remains to be known is how long it will take students to decide on the dissertation topic: is there really a *Eureka* moment or is it the result of a long-time search?

Question 8 explores the length students spent between wanting to find a topic and actually finding one. Due to the inherent limitation of survey studies, I could not list all possibilities for the time duration. Instead, four options were presented: less than one month, one to three months, three to six months, or over six months. 37 students in natural sciences, 27 in social sciences and 10 in humanities responded to this question and the results are reported in Table 5.

Table 5. Time Students Spent on Dissertation Topic Selection

	Natural Sciences		Social Sciences		Humanities	
	Number	**Percentage**	**Number**	**Percentage**	**Number**	**Percentage**
Less than one month	5	13.5%	2	7.4%	0	0
One to three months	8	21.6%	7	25.9%	0	0
Three to six months	4	10.8%	5	18.5%	3	30.0%
Over six months	20	54.1%	13	48.1%	7	70.0%

Two important pieces of information can be drawn here: 1) The largest proportion of students in all three fields have spent over six months during dissertation topic selection. This contradicts the common assumption that because students in the natural sciences completed their Ph.D. in a shorter period, they must have spent a much shorter time finding their dissertation topic. The evidence here indicates that a large proportion of students in natural sciences spent over six months in dissertation topic selection. 2) No one in humanities in this survey reported having found the dissertation topic in less than three months. This is not too surprising, given that existing research (Council of Graduate Schools, 2005) has already shown that a humanities Ph.D. takes the longest among all disciplines.

Summary of findings to Research Question 1.

As expected, second- and third-year students are in the important stage of selecting the dissertation topic. They are expected to complete a series of tasks during this stage. The current results reveal that natural sciences students are more "fruitful" than other students. A higher percentage of natural sciences students have completed the dissertation topic selection, dissertation chair selection, committee selection, and have passed the qualifying exam, compared to students in social sciences and humanities. This general trend is expected given that natural sciences is known to have a shorter time-to-completion period than those in social sciences and humanities (Council of Graduate Schools, 2005); however, some unexpected findings include: a) more natural sciences and social sciences students have chosen their advisors before the dissertation topic, and this trend was reversed for students in humanities; b) whereas most natural sciences students chose the topic with the help or direct intervention from their advisor, some chose the dissertation on their own; and c) nearly half of the students in all three fields said they have spent over six months in selecting the dissertation topic, and none of the current participants in humanities said they selected their dissertation topic in less than three months. These statistics have painted a complicated picture of the challenges students face during dissertation topic selection as well as the role disciplines have played in affecting the completion status of major tasks or possibly the degree of agency in dissertation topic selection.

Research Question 2: What Criteria do Students Perceive Important in their Selection of a Dissertation Topic?

Part II (Questions 10–24) of the survey examined 15 possible criteria for dissertation topic selection. 42 students in sciences, 28 in social sciences, and 10 in humanities answered these questions. Descriptive statistics are reported for students in these three disciplines. Non-parametric Kruskal Wallis Tests were used to examine the disciplinary differences.

Table 6 includes students' overall perceptions of the importance of each index. Except for Question 21 (Q21), Question 22 (Q22), and Question 23 (Q23), the remaining indexes received high ratings (M>5), suggesting similar beliefs for students from different disciplines, that the topic needs to be feasible and it should be suitable for the student's personal, academic, and professional development. Q21 and Q23 received low ratings (M<5) from all students and Q22 received low ratings from social sciences and humanities students. In particular, Q21 discusses whether the topic should be a funded project that already existed; here, students did not think this was important. However, for Q22 that asks whether the project should have the potential to be funded in the future, there exists a disciplinary difference—the average for natural sciences students is rather high (M=7.71), but for social sciences and humanities, it is rather low: 5.54 and 5.10, respectively. This difference is expected, given the different instrument requirements for

conducting research in these fields. Q23 asks whether it is important to have the topic suggested by a faculty member. It received low ratings from all three disciplines, suggesting students' unifying stance on this issue: It is not important that the dissertation topic be suggested by a faculty member.

Table 6. Students' Perceptions of the Importance of Different Criteria

		Natural Sciences	Social Sciences	Humanities
Q10: The topic should be related to my personal background.	Mean	5.57	6.36	6.80
	Median	5.00	7.50	7.00
	SD	3.12	2.84	2.49
Q11: The topic should be suitable for my personality.	Mean	6.62	7.29	8.30
	Median	7.00	8.00	8.00
	SD	2.20	2.42	1.06
Q12: The topic should be of high academic interest to me.	Mean	9.29	9.50	9.00
	Median	10.00	10.00	10.00
	SD	0.94	0.69	0.52
Q13: The topic should be of high personal interest to me.	Mean	8.12	8.93	8.70
	Median	9.00	9.00	8.50
	SD	2.13	1.49	0.82
Q14: The topic should go well with the trend in my field of study.	Mean	7.45	8.21	8.30
	Median	8.00	8.00	8.50
	SD	2.36	1.52	1.25
Q15: The topic should be tackled with the instruments that are available to me.	Mean	7.64	7.11	7.80
	Median	8.00	7.50	8.50
	SD	2.23	2.41	1.93
Q16: The topic should be tackled with the data that I can easily collect.	Mean	6.64	6.39	6.70
	Median	7.00	6.50	7.50
	SD	2.43	2.39	2.00
Q17: The topic should have a strong potential for publication.	Mean	8.93	8.39	9.30
	Median	9.00	9.00	9.50

	SD	1.50	1.50	0.82
Q18: The topic should improve my opportunities for employment after graduation.	Mean	8.29	8.36	9.10
	Median	9.00	9.00	9.50
	SD	1.93	2.02	1.10
Q19: The topic should be one that could be completed in a reasonable length of time.	Mean	8.76	8.32	8.80
	Median	9.00	8.00	9.00
	SD	1.36	1.28	0.79
Q20: The topic should be one that could be completed with the expenditure of a reasonable amount of money.	Mean	7.88	8.58	7.40
	Median	8.00	9.00	7.00
	SD	2.16	1.32	1.58
Q21: The topic should be part of already funded research that needs to be done.	Mean	5.43	3.71	4.40
	Median	6.00	3.00	5.00
	SD	2.84	2.72	2.01
Q22: The topic should have potential for institutional, governmental, or other funding.	Mean	7.71	5.54	5.10
	Median	8.00	5.50	6.00
	SD	2.19	2.62	2.13
Q23: The topic should be offered or suggested to me by a faculty member.	Mean	4.71	3.14	3.90
	Median	5.00	3.00	4.00
	SD	2.47	1.74	2.18
Q24: The topic should be in an area where my advisor has expertise.	Mean	7.29	7.14	6.60
	Median	8.00	8.00	7.50
	SD	2.46	2.48	2.76

Tests of the three groups' ratings were conducted using Kruskal Wallis Test. The results suggest that statistical differences were detected for Question 11($\chi^2(2)= 6.535$, $p<.05$), Question 22 ($\chi^2(2)= 6.65$, $p<.05$), Question 23 ($\chi^2(2)=17.44$, $p<.001$), and Question 24 ($\chi^2= 7.62$, $p< .05$). A post-hoc test using Mann-Whitney tests with Bonferroni correction showed the significant differences between natural sciences and social sciences in Question 22 ($p< 0.05$, $r=0.035$) and Question 23 ($p<.001$, $r =.005$) ,

and between natural sciences and humanities in Question 11(p<0.05, r=0.048) and Question 23(p<.01, r=.062). There was no significant difference between social sciences and humanities students.

Question 11 is the place where natural sciences students and humanities students differ. This question asks whether the topic should be suitable for the student's personality. Whereas natural sciences gave it a moderate weight (M=6.62), humanities students valued it highly (M=8.30). Question 22 is where natural sciences students and social sciences students differed. This question asks whether the topic should have the potential for funding. Natural sciences students gave it a higher value than social sciences students. Question 23 is the question where natural sciences students are significantly different from social sciences or humanities students. This question is about the advisors. It asks whether the topic should be assigned by an advisor. The results clearly suggest natural sciences students perceived this criterion to be much more important than social sciences or humanities students.

Overall students have similar perceptions of what should be valued more (or less)—academic, professional, or personal potentials—in selecting a dissertation topic. There are only a few disciplinary differences, such as the funding and advisor's input: Natural sciences tend to value the funding potential and the topic being suggested by the advisor much more. This further illustrates an advisor's influence on a natural sciences

student's dissertation topic selection—not only did most of these students select the topic with the advisors, but they also consider it important to have an advisor's direct suggestions on the selection. Aside from these differences, there are no big discrepancies in students' considerations: They all paid high attention to various aspects in personal interest, academic potential, employment possibility, and logic concerns. However, thinking rationally in a survey does not mean the individual will actually make a rational choice in real life. The interview section further investigates students' actual process of selecting a dissertation topic.

Summary of findings to Research Question 2.

This section reviewed students' perception of the important and unimportant criteria in the selection of a dissertation topic, including detailed aspects of personal interest, academic and professional potential, as well as logistic concerns. Students across disciplines have similar ratings in almost all survey items. They consider it is important that the dissertation topic is of interest to them personally, has high publication potential, offers them good employment opportunities as well as does not cost them an overwhelming amount of time and money. The only main disciplinary difference lies in the perception of the importance of having the topic suggested by a faculty member. Whereas natural sciences students rated it very high, it received a fairly low rating for students in social sciences and humanities. Except for this difference, students share

similar perceptions of the important and unimportant criteria in dissertation topic selection.

Research question 3: What are the Possible Sources of Influences in the Process of Selecting a Dissertation Topic?

Students may go to the following sources for help during the topic selecting process, including dissertation guides, advisors, coursework, or committees. The following reports student usage and evaluation of each of these sources.

Advisors. Question 9 asks whether students have chosen the topic on their own, in collaboration with their advisor, or the committee. Question 27 asks how satisfied students are with their advisors. 39 students in natural sciences, 29 in social sciences, and 10 in humanities responded. Table 7 reporting the responses to question 9:

Table 7. Ownership of the Dissertation Topic

	Natural Sciences		**Social Sciences**		**Humanities**	
	Percentage	**Number**	**Percentage**	**Number**	**Percentage**	**Number**
Select the topic on one's own	18.0%	7	46.2%	12	60.0%	6
Mutual decision between the student and the advisor	56.4%	22	25.9%	7	0.0%	0
Mutual decision between the student and the committee	2.6%	1	3.7%	1	10.0%	1
Given by the advisor	7.7%	3	0.0%	0	0.0%	0
Sub-topic	7.7%	3	0.0%	0	0.0%	0
Other. Please specify*	7.7%	3	25.9%	9	30.0%	3

(* “Other” was provided for students to write down their own situation if it does not fit into the above categories. But the only comments I received from this section were acknowledgements that they did not select a dissertation topic.)

With regard to who chose the dissertation topic, five options were provided, as shown in Table 7. Some disciplinary differences are revealed: The most common approach for a natural sciences student’s dissertation topic selection was in consultation with the advisor, whereas the most common way for social sciences and humanities students was making the selection on their own. To be specific: 56.4% (22 respondents) of the natural sciences participants chose the topic with their advisor, but that percentage shrunk to 25.9% (7 respondents) for social sciences students and 0.0% (none) for humanities students. In contrast, 46.2% (12 respondents) social sciences students and 60.0% (6 respondents) of humanities students chose the topic on their own, but that number dropped to only 18.0% (7 respondents) for natural sciences students. Additionally, 7.7% (3 respondents) natural sciences students were working on a topic given by the advisor and 7.7% (3 respondents) on a subtopic of their advisor’s project. This is unique because no students in social sciences and humanities have reported such experiences.

Question 27 asks students to rate how satisfied they are with their advisors. Responses were received by 42 students in natural sciences, 25 students in social sciences, and 8 students in humanities. A 1-10 scale was used, with 1 being the least satisfied and 10 being highly satisfied. Compared with students in natural sciences (*mean*=7.74, *median*=8, *SD* =2.46) and humanities (*mean* = 7.88, *median* = 9.5, *SD*=2.8), students in social sciences

(*mean*=8.76, *median*=10, *SD*=1.81) were most satisfied with their advisors. Overall, the current respondents were content with their advisors. Students also provided text comments about their ratings. The student comments can be divided into four categories: The first category includes students who did not have an advisor at the time of this research; comments in category 2 all describe how fantastic their advisors are (the second category is also the largest); the third category includes positive comments as well, but these comments were less strong than category 2, containing some minor criticisms or suggestions; and the fourth category includes all negative comments students have towards their advisors.

1) No advisor: Eight participants do not have an advisor.

- N/A
- I don't really have an official advisor.
- Haven’t “quite” selected one yet.
- Not yet applicable.

2) Very high evaluation of the advisor: twenty-three comments were extremely positive.

- She’s amazing. The best boss to work with in the world.
- Couldn’t ask for better.
- Very helpful, extremely knowledgeable, flexible, and tailors experience for grad students’ post-Ph.D. careers plans.

- My advisor gives great advice and support, even though my topic is not exactly the advisor's specialty area.

3) Positive evaluation with some suggestions: 6 comments fall into this category.

- She is excellent, but she is not specialized in what I am interested in for my dissertation.
- My adviser is helpful but sometimes makes strange decisions.
- I feel some distance from my advisor, but I know that she is not my friend, not my sister, even not my boss. I know that she is very busy. She is exactly my academic advisor, the person that I can consult about academic matter.

4) Negative evaluation: 7 comments were negative.

- My advisor is not very knowledgeable on my topic of interest, but, in his defense, there has not been much work done on this topic to be familiar with.
- Dealing with my dissertation advisor and my advisor's shortcomings has been the biggest hurdle in moving towards my Ph.D.
- My advisor is probably the worst human being I have ever met! This is not a joke. He is a micromanaging control freak with major anger problems. He often hinders my own self-motivation and frequently smothers any kind of creativity I might have because he never gives any of his students time to breathe. I don't think many other academics are as bad as him, but I know a lot of them are

> indeed pretty bad. Too many are way too obsessed with their work and have no idea that the majority of people, including their students, do not have those same values. My adviser has made me feel quite jaded about academia in general and is why I will probably pursue a different route after grad school.

The ratings and text comments suggest most students were satisfied with their advisors. There are some differences in students' compliments and criticisms. For students who are satisfied with their advisors, they praised the advisors in all aspects (e.g., caring, supportive, knowledgeable, flexible, great), but when it comes to criticisms, those negative comments were more about the advisor's personality and support of the student. Only one comment indicates his/her advisor was not an expert in the area in which he/she is interested. These findings suggest: a) Natural sciences advisors are more involved in students' selections of dissertation topics than social sciences or humanities advisors; however, there are still an impressive percentage (18.0%) of sciences students who chose the topic on their own. b) Most advisors have played an important and supporting role in students' development. c) A desirable advisor is a combination of numerous qualities (e.g., knowledge, character, style); yet not caring about the students is the complaint that leads most often to student dissatisfaction. In short, as a source of support, an advisor's role in a student's search for a dissertation topic is significant and most advisors have handled this role well.

Committees. Committees could be a source of influence in the dissertation topic selection process. Question 4 and Question 9 inquire on the committee. Question 4 asks whether students have selected all of the committee members at the time of this survey. In natural sciences, 13 students (31.0%), in social sciences, 18 (17.9%), and in humanities, none, have completed their committee formation. The third sub-question in Question 9 asks whether the dissertation topic was selected between the student and the committee. Only one (2.6%) student in natural sciences, one (3.7%) in social sciences, and one (10.0%) in humanities checked "yes" in the response. These statistics together suggest committees were not a common source of influence in students' selection of the dissertation topics.

Coursework. Coursework can also be a source for students to develop dissertation topic ideas. Question 7 includes a sub-question asking whether the dissertation topic is closely related to the courses the student has taken, and 14 (51.9%) students in social sciences and five (50.0%) students in humanities thought so, whereas only 13 (31.4%) students in natural sciences felt the same way. These statistics suggest coursework is a good place for students to find dissertation topic ideas, although its effect on dissertation topic selection is much stronger for students in social sciences and humanities than in natural sciences. Coursework is an important part of the Ph.D. education, and these relatively high percentages suggest coursework is an important source for students' selection of dissertation topics. There is also a disciplinary difference. As previously

observed, the most common way for natural sciences students to choose a topic is to decide it with their advisor, but the most common way for social sciences and humanities students was to select the topic on their own. Findings regarding coursework illustrate that it is an important source for social sciences and humanities students in dissertation topic selection. Over half of the social sciences and humanities students indicate their dissertation topics are closely related to the coursework. That is, social sciences and humanities students are more likely to select the dissertation topic on their own, and their previous coursework can be an important source of inspiration in this selection.

***Dissertation Guides*.** Dissertation guides can be another source of influence, especially when students were not comfortable with utilizing other sources. Questions 1 and 25 are about dissertation guide usage and evaluation. Only seven (16.7%) students in natural sciences and five (17.9%) students in social sciences said they used dissertation guides; no participants in humanities reported using them. Question 25 asked for the student's evaluation of the dissertation guides. On a scale of 1–10, 10 being "highly useful" and 1 being "least useful," the average rating for students in natural sciences and social sciences is 4.27 (*Median*=5, *SD*=2.27) and 5.55 (*Median*=5, *SD*=2.33), respectively. The seven respondents in humanities almost universally rated it as 5 (*Median*=5, *SD*=1.05).. Following the rating, students were requested to provide some justifications to their rating. Their textual comments fall into three categories:

1) They never heard of dissertation guides.

- What books?
- Never used.
- Have not used any.
- I have never seen them.

2) Students' assumptions of what dissertation guides look like.

- I didn't even know that books like this existed or were available. I don't see them as useful. Any information I need, I should be able to get from my advisor.
- I'm really not interested in adding something else to my reading list.
- I have not read any so I can't be sure, but 4 indicates my assumption. I prefer reading others' dissertations to learn what a good dissertation looks like.
- I haven't read any, but think they would not help me in my situation.
- I imagine some of them could be helpful to some people, but I tend not to rely on advice books.
- I have never used any of these texts, so I don't really have an opinion on them. I would imagine for people who are really struggling to find something they are interested and (at minimum, moderately) passionate about, they could be hugely useful resources.

- I have found these books to offer little. Sometimes they are good for general suggestions.
- They provide some good advice, but are really hard to follow in specific cases. They can be useful, though, to see what other people think about how to handle time, personal life, and so on. However, they are not much more useful than friends' advice about what they did or did not do.
- Books are usually informative but general and they say similar things so one needs to read only one or two.

3) Positive evaluation. Only one among the 53 comments is positive:

- These books have helped me organize my thoughts and my time when thinking about the dissertation process.

Dissertation guides surely have their strengths, but in practice, most doctoral students either never heard of them or resist using them from the beginning. For students who actually used them, very few (in this case, only one positive response) paid compliments to these guides. These results suggest that if students run out of other resources in dissertation topic selection, they rarely will go to dissertation guides, and even if they have used one, they rarely find the guides helpful. In other words, if students are left to their own devices to select a dissertation topic and could not find one, they will be in a lonely and frustrating situation. The self-help dissertation guides may not help them either.

Summary of findings to Research Question 3.

During the dissertation selection process, students may be under the influence of different sources. This section reviewed and investigated the actual influences for students in different disciplines.

The first finding is the role of students themselves. For natural sciences students, 18.0% of students selected the topic on their own, and this number increased to 46.2% and 60.0% for social sciences and humanities students, respectively. This suggests that helping students, especially social sciences and humanities students, select a good dissertation topic on their own devices is very important.

The only proven significant external source of influence was the advisors. 71.8% of natural sciences participants selected the topic with the advisor, worked on the advisor's project, or received the topic from the advisor. For social sciences students, 25.9% indicated they selected the topic with the advisor. Advisor influence on humanities students was not found in the survey results. When students were requested to evaluate their advisors, most comments were positive. What is interesting is that some advisors are praised on all aspects, including their style, academics, and personalities; but for those who received criticism, the criticisms are mostly about their characters or that the advisor does not care about the students. Only one student (see the quote on p.67) specifically mentioned the advisor was not an expert in the field in which s/he was interested.

The next important source is a student's coursework. When being asked whether the dissertation topic was closely related to coursework, a high percentage of students from social sciences (51.9%) and humanities (50.0%) responded positively. The percentage of natural sciences (31.4%) indicates a fairly strong influence as well. This trend corroborates well with the proportion of students who chose the dissertation on their own devices. That is, humanities and social sciences students are more likely to choose the topic on their own, and their topics are also more likely to be closely linked to their coursework.

In summation, there are a number of students in all disciplines who selected the topic on their own; the two most important sources of influence are the advisors and the coursework; however, students' disciplines are important to account for how much these external influences affect the actual topic decision.

CHAPTER 5

INTERVIEW RESULTS

Research Question 4: How did the Influences Play out in the Process of Selecting a Dissertation Topic?

The invention of a dissertation topic marks the beginning of the dissertation project, as well as the end of the conceptual thinking that students have been consciously or unconsciously engaged in for a long time. As the topic invention is made possible by students in their particular individual contexts, examination of this complex process must be taken into account both for the particularities of the student as well as the context. Below, I report individual stories of how students arrive at a decision on their dissertation topics. These stories, as it turned out, presented the overarching influence of the discipline—students in different disciplines are drawn by different influences (e.g., advisors, coursework, and personal experience) and their dissertation topic selection stories reflect three types of searching, negotiating, and deciding experiences: For natural sciences students, their stories are stories of confrontation, conformation, and strategic planning. Advisor influences are clear in these students' topic searches, and the agency of students played out very differently. For social sciences students, their search for the dissertation topic starts from themselves. They tried to look for dissertation topics that can explore their own identity, answer questions in their profession, or address questions

that are of personal interest to themselves. For humanities students, their dissertation topic experiences reflect the active negotiation of their aesthetic preferences and faculty strength. They want to find a topic that genuinely interests them and also falls in the available faculty's research interests. Below is a report of the different stories.

Natural sciences: Confrontation, conformation, and strategic planning.

Emily. Before delving into her story, I will provide some of the requirements and policies in her program to contextualize her story. Emily is a student in the Ph.D. program in biochemistry in the Department of Chemistry and Biochemistry. In the Ph.D. Biochemistry program at ASU, the admission decision is made by a committee, not an individual advisor. Potential students can contact individual advisors but that does not guarantee their admission. Students need to decide to join a lab by the end of the first semester. During the first semester, students can rotate among several labs to identify an advisor with whom they want to work. Once decided, the student is expected to work with that advisor in that lab for the rest of their Ph.D. program. Two to six months prior to the dissertation defense, the student is required to schedule a technical review to present his/her research progress and discuss any manuscripts in preparation. The dissertation needs to be original and the major research efforts of the student need to be

included in the dissertation. In order for the student to graduate, one first-authored manuscript needs to be published in a refereed journal.[4]

When I talked with Emily, she pointed out that publishing was the most important criterion for graduation in her program. For the dissertation, she told me that students can compile their previous publications and organize them into the dissertation format. In other words, students do not need to write a completely new study in the dissertation; instead, they can use their previous publications.

Emily was 28 years old in her third year of the Ph.D. program. She was originally from Poland. She came to ASU for a Ph.D. in biochemistry in 2009. Her previous research and the Ph.D. areas were along the same line: Her MA was in general biology and her Ph.D. focused on protein structure. She decided to obtain a terminal degree because she wanted to be a specialist in biology and an undergraduate degree was not enough. She was interested in the biochemistry Ph.D. at ASU because of its interdisciplinary nature. According to her, she knew what she needed to do for the next four or five years on her dissertation topic after her first meeting with her advisor. Her first year was on a Fulbright Scholarship from her home country, and she later worked as a teaching assistant in her program. Emily knew her topic from the beginning. She had

---

[4]Information retrieved from their department handbook, 2011–2012: http://chemistry.asu.edu/Graduate/download/Handbook_2011_2012_final.pdf.

completed two coauthored papers on the same topic. When she was applying for a Ph.D. program, she had emailed many of her professors, and her advisor was one of them. Her major reason for choosing her advisor was similar interests:

> I did not know her in person, but via email. That's why I joined her lab; you know I want to work with proteins, and her research is about proteins, you know, her lab, so that's why I joined her lab. (Emily, February 24, 2012)

When she joined the ASU biochemistry program, she started working with this professor on protein early on because this was her area of interest. When Emily met her advisor for the first time, she knew what she wanted to study—the structure of proteins. That was a project for which her advisor had written the proposal, and what she needed to do in the lab was to figure out the answers.

> I met her the first time, [and] she was writing me that. First of all, she gave me her grant proposal, so what's her goals [what her goals are][5] in this lab, like what she wants me to answer, so she gave me that and I read it. Then we were talking about that. Pretty much I knew from the beginning what would be my part. It was pretty big. So it's like for a dissertation topic, so the dissertation topic is already ready. (Emily, February 24, 2012)

---

[5] This participant was not a native English speaker. I used brackets to show her intended expression.

The biochemistry program allows students to do three rotations during the first semester, but she did not rotate; instead, she started to work on her topic right away.

> The reason why I did not do rotation [was] the sooner I started, the sooner I can graduate. I thought so, which is not true, now I know…. This was my thinking at that time: … I already had this topic, you know, I can start and get results. (Emily, February 24, 2012)

It was clear that Emily and her advisor had quickly reached a consensus on what she needed to accomplish in her Ph.D. study. She came to the degree for a very practical reason, that is, a passport for certain positions. Emily started to work on the topic right away out of time concerns.

Emily did not like her advisor or the project. She thought the proposal was not well written and research became boring because she could not learn anything new. She was also unhappy with her advisor because she did not care about her students and did not give substantive advice on Emily's research. As the dissertation project will take her four years, she planned to "have nothing to do with it [dissertation topic] after graduation" (March 19, 2012). She was hoping to work in industry after graduation.

Zhang. He is a student in the geological sciences Ph.D. program in the School of Earth and Space Exploration (SESE) at ASU. SESE did not specify whether student admission is decided by a committee or individual faculty members; however, it has

explicit suggestions on whether students should contact individual faculty members. Interested students are encouraged to contact the faculty who conduct research in the area of interest.[6] This school does not have any specification on the time of the rotations, but it has specific requirement on students' progress. Students are required to discuss seriously with a faculty member what they want to pursue in the first semester; in the second year, students are supposed to pass the comprehensive exam; in the third and fourth years, students submit an annual progress report of their project to the committee; and in the fifth year, students defend the dissertations. Students are required to conduct independent, original research. They are not required to have publications to graduate, but publishing is encouraged. For their dissertation, they are encouraged to prepare it "in a manner that would permit (or have permitted) individual chapters to be submitted (or already submitted) as individual journal articles" (SESE Student Handbook).[7]

Zhang was 27 years old and in his second year of the Ph.D. program. He originally came from People's Republic of China. His undergraduate and graduate majors were also in geological sciences. It should be noted that Zhang did not choose to study geological sciences in his undergraduate studies. He was assigned to that major because his matriculation score was not high enough for other majors. He did not like the major at

[6]http://sese.asu.edu/geosciPHD.

[7]http://sese.asu.edu/sites/default/files/file/20120814b_SESE_Grad_Guidebook.pdf.

first and he even thought of transferring to computer sciences, but gradually he started to like this major. Towards the end of his undergraduate studies, he thought seriously of working in geological sciences. He knew that he could not get a good career in geological sciences with a Bachelor's Degree, so he applied to the graduate school in his senior year and was accepted. His interest in geological sciences increased and he decided again to continue his education in this field by applying to Ph.D. programs. This time, he was more interested in overseas doctoral programs. He focused on the United States because "it seems to offer full funding" (Zhang, March 3, 2012). During the application, once he identified a potential professor and doctoral program, he would consult his peers and graduate advisor for suggestions:

> I searched the advisor's information and the universities they are at. Through reading literature, I know who is doing what. Also, I talk with my peers and advisor and I had a pretty good sense of the major universities that have these people. (Zhang, March 3, 2012)

When he contacted his later doctoral advisor during his application, he received quite encouraging and affirmative responses:

> Before sending out the application, I emailed him my curriculum vitae and asked if he has any opening this year. I also told him my research background. Then he

> became very interested in me and expressed wishes for me to come. (Zhang, March 3, 2012)

He also had a good sense of his dissertation project even before coming to ASU. That information was available in the advisor's personal website. "I knew it before contacting him. That was why I applied" (Zhang, March, 3, 2012). He also explained that his field is not too large and his Master advisor and Ph.D. advisor must have read each other's papers:

> I knew the topic through reading his website. I also knew that because of my Master advisor. He also studies mantle convection, so my previous advisor and my current advisor, they were in the same area. Because of that, I think they must know each other, or at least, they must have read each other's articles. Then my previous advisor recommended me to my current advisor, so I can continue working in that area. (Zhang, March 3, 2012)

Zhang was funded on a five-year research assistantship on the same project he knew during the application. That project was the project he needed to explore in his dissertation. In other words, his topic was set, which he knew even prior to enrollment. He had written a manuscript draft based on his research on that project. It was under revision during the time of the interview. He quite enjoyed working on this project and working with his advisor.

Lidan. She was the youngest among all my participants. She was a second-generation Chinese American. Because her real name uses pinyin, I used a Chinese name for her for this project as well. She was 24 years old and came to pursue a Ph.D. in biology. In the application website, this program asks the students to identify one or several faculty members in which the student is interested and then put that information in the application form to "ensure that these faculty members see your application and can participate in admissions and funding decisions."[8] In Lidan's case, she contacted her later advisor as well. She told me that identifying the primary investigator a student wants to work with is the most important in the application in her field. When I asked her how she knew Steven (her later Ph.D. advisor), she provided the following account:

> I actually know him in two ways: when I was an undergrad, I started going to conferences and I advise all the undergrads and all the grads in the lab to go out to meet people, because that's the best way. Connection is the best way to get you anywhere. The places I applied to for the Ph.D. is based on the PI. I just read papers and I just decide the papers that did not bore me. I was interested in it. So I just looked at Steven's papers. I picked up a paper and I was interested in it. I also met him in conference. I got to the lab before I apply to that. I think that helped

[8]https://sols.asu.edu/graduate-studies/degrees/biology/process

me a lot. And also he had an opening in the lab. That's important as well. (Lidan, March 2, 2012)

This was quite impressive for Lidan, as she was an undergraduate at that time. She identified one or several Primary Investigators whose work(s) she found interesting and made efforts to meet with professors in the conferences, and she visited Steven's lab before applying.

After she joined the lab, she still needed to take the first step of developing the dissertation topic on her own. She had not fully decided on her dissertation topic yet, but she was running a trial experiment. If the results turned out positive, she would examine that for her dissertation. Her big dissertation idea was to examine the effect of the reproductive condition on the stress response in wild songbirds. The idea was derived from reading papers and conducting experiments; however, there is a little twist here. This was, in fact, her second dissertation idea, as the first did not go well because neither her advisor nor she was familiar with the instrument used in that project:

> And what was important to me was that my advisor has done all the methods I wanted, so he can advise me on that. Because one of reasons why my first experiment failed, or it did not fail, it just didn't go so well, is because my advisor had never done that method. So we were both in the dark out of it. So that did not go well, and I did not want that repeating again…. My advisor, you can see he is

> an expert in both of the experiments, both methods. That's important to me. (Lidan, March 2, 2012)

Toward the not-so-desirable outcome, her advisor Steven had a similar reflection:

> We kind of wanted to apply those techniques to the question she is studying, so we tried to use that technique. It's just not working for us…It's not Lidan's fault. I don't know what it is. It should be working, but it's not working…so that I think was also the motivation to try something different. Because if that technique worked, then we really wanted to use it. We had all kinds of ideas we could use that technique for, if it worked. But it's not working. So we were forced to, now we need to think of doing something different. We just cannot count on the technique because it is not working. (Steven, March 15, 2012)

In Lidan's case, the availability, familiarity, and usefulness of some technique cast a restraining influence on her choice of dissertation topic. As the first idea with an unfamiliar technique did not work well, both her advisor and she decided to use another more conventional and reliable method. As Lidan reflected, the fact that her advisor is an expert in the technique she will be using for her dissertation project is "important."

Cory. He was 28 years old and in his second year in the Geological Sciences Program in the School of Earth and Space Exploration, the same program as Zhang. He originally came from Lebanon. He did his undergraduate and graduate studies at ASU,

and he worked with the same advisor for his undergraduate thesis project, Master's thesis project, and dissertation. His staying in the same program was a deliberate choice and not a requirement. He applied to other Master programs and was accepted, but he chose to stay at ASU. He also applied to other doctoral programs and was accepted and again chose to stay at ASU. It should be noted that Cory's advisor encouraged him to explore other programs on both occasions and wrote recommendation letters for him for both applications. Throughout Cory's narrative, the most salient theme is that he is always looking for the "sweet spot": the sweet spot for his passion and his career, the sweet spot for his undergraduate study and life, the sweet spot for his dissertation topic. He implemented this philosophy throughout his studies. From the beginning, he was interested in geology. He felt like it was a detective story. He consulted some professionals in petrol companies and they gave him some books to read. Below is his description of how he felt about geology as a high school student:

> It ['s] got a perfect mixture of working in the field outside—I can collect data—as well as lab work, and computer work. [Be]cause I knew what I did not want. I did not want to stay in the office for eight hours or nine hours every single day. With the geology field, it's pretty flexible. Some days you work outside for 10 days; then you come back and process your data for a week or one month. Then you go back out, come back again, meeting with managers and other people. You have to

> be pretty versatile. You have to be adept to speak to your manager at the managerial level, but also speaking to the technical people. I think, at the time, I thought geology is a perfect profession to do that kind of things. Experiences so far, it's true, that's why I've been sticking with it. (Cory, March 6, 2012)

He attended international schools in Lebanon and decided to apply to the United States for his undergraduate studies. He placed more emphasis on the place and the program strength in comparing different universities. He had some home country friends who were already in the Unites States. ASU's geology program was one of his best options. He then consulted with friends who were at University of Arizona for ASU's geology program. They described the program and location to him, and he decided to come to ASU because the geology program of ASU was "a sweet spot" for study and life:

> I wanted to go to a place that was not too cold, that was not too out, in the middle of nowhere. But at the same time, it was not in a place that is too crowded…but for my program this was more attractive to me here. So it was a combination of life and the situation of the university and that was main factor that sort of helped me to decide where I want to go. (Cory, March 6, 2012)

After being at ASU for nine years, his knowledge of geology expanded and the actual dissertation topic gradually emerge from discussions with his advisor. It was again a good

match between his interests and those of his advisor's and between his background and career goal:

> So my advisor kind of had a general idea of what my interests were, in structural geology, earthquakes. And of course I knew what his interests were. So what we ended up doing was we sat down. We kind of had a brainstorm session, then he said that, I asked him what kind of questions are still unanswered in earthquake geology, so he would say: you have this question unanswered, this question was unanswered and I'm interested in it. So we kind of came up with this dialogue. Then in the end I end up choosing what I found as an interesting question, but also the interest from my background, my academic background related to that question…. In my case, because I knew I did not want to be in academia for the rest of my life, I wanted to select a topic where I can apply it later on after I graduate, whether it's in academia, or in private industry, or in government. (Cory, April 3, 2012)

Summary of natural science students' experiences. There is an assumption that natural sciences students always work on preexisting topics given by their advisor (Dong, 1998; Parkhurst, 1990; Shaw, 1991). Emily and Zhang's stories can fit into this category, but they had very different evaluations of their dissertation topics (Emily did not like it; Zhang enjoyed it). For them, the advisor, the lab, the dissertation topic, and even the

funding came as a package. Neither of them had the freedom to choose their dissertation topics once they decided on their advisor. It may look as if they did not have any individual agency in dissertation topic selection, but the fact is they did have agency and used it (to different degrees) in making some important decisions (e.g., the field, the lab, the advisor) that led them to their "encounter" with the dissertation topic that their respective advisors proposed.

The first place where they used agency is their choice of staying in the same field. As natural sciences are more skill-driven, transferring between different departments in natural sciences is less common than in humanities or social sciences. Both Emily and Zhang had been in the same field since their undergraduate years, indicating their sustained interest in their area.

During their selection of advisors, Emily and Zhang had exerted different degrees of agency as well, and their different evaluation towards their dissertation topic may stem from their application process. In the case of Emily, her contact with her advisor before admission was rather generic. Although she identified a match of interest between her and the later advisor, their email correspondence appeared rather neutral. In the case of Zhang, he knew that people were doing work similar to his, what project the Ph.D. advisor was pursuing, and he figured out the possible "acquaintance" between his Master's advisor and his later Ph.D. advisor: "they must know each other" (March 3,

2012). From Emily's narrative, a match of interest is the only reason that she identified the potential advisor in the Ph.D. admission process, which seemed plausible and adequate; however, when comparing her experience with Zhang's, her thoughts do not seem sufficient. Zhang's knowledge of his field and the social relations among people in the field were much more substantive than Emily's.

Additionally, they paid different degrees of attention to the funding possibilities during their applications. Whereas Zhang mentioned funding being an important reason for his consideration of a Ph.D. program, Emily did not emphasize it very much. One reason may be because Emily was offered a one-year Fulbright Scholarship from her home country. She was funded as teaching assistant after the end of the scholarship. Zhang was promised a five-year research assistantship, and that was also one of the most important reasons that he accepted the offer. It is not clear whether if Zhang was not offered a teaching assistantship, he would have still accepted this offer. But either way, he placed a stronger emphasis on funding than Emily. This could be related to how funding was allocated to the students in these two programs of which students have little control, but in retrospect, Emily did acknowledge that the sources of funding should be an important factor to consider in selecting a lab/dissertation advisor.

Although Emily did not like the topic or her advisor, she chose to stay and conform to her advisor because she wanted to graduate as soon as possible and thought

conformation was the most viable option. Yet for Zhang, he had communicated well and strategically chosen ASU's program, as it matched his academic background best and it offered adequate funding. His dissertation topic experience is more a story of good negotiations of different programs, different advisors, and different offers prior to admission. His negotiation was completed before the official admission. When he actually joined ASU, he started to enjoy the results of his previous negotiation, including the dissertation topic on which he chose to work.

Lidan and Cory's stories are examples of good negotiations as well. They were natural sciences students, and they were expected to explore and select a dissertation topic instead of having the topic assigned by their advisors. Unlike in humanities or social sciences, natural sciences students have usually been in the same major since starting college; switching of majors is not very common. Lidan and Cory's dissertation topic interests stem from their long exposure in the field as well as their increasingly clear career goals (particularly true in Cory's case). Kuhn (1970) discussed the problem-solving nature of normal sciences, stating that each discipline has a set of inherent problems and techniques to solve the problems, which are waiting to be discovered. As a student's subject knowledge increases, he/she will realize the gaps here and there. What is relevant is how to pick and select. Lidan and Cory's advisors played a role like this—sharing with them their insights of the field to help the students to choose

the more promising topic. In Cory's case, his life philosophy and career goals also helped since he wanted to do something he liked so that he would not waste five years of not enjoying his work, and his interests stem from his high school encounter with petrol professionals. He wanted to work in an area that has a clear application value so that it could open doors for higher-ranked positions in industry, government, or academia.

One of the restraining factors that Lidan stumbled upon in her exploration of potential dissertation topics is the importance of resources, or more precisely, the advisor's core expertise. It is exciting to explore new paths and experiment with new techniques, and both Lidan and her advisor were very excited to use a new technique, but somehow it did not work out. Later, both of them decided to choose a technique in which the advisor is an expert. Cory also mentioned his dissertation topic matched that of his advisor rather than some external committee member such as what he experienced in his Master's project. Because of that, in Cory's selection of dissertation topics, he considered it important find a "sweet spot" that is of interest to him personally and professionally as well as falls in the core research expertise of his advisor.

Social sciences: Self as the source of inspiration.

None of the program areas in which the six social sciences students study stipulated a role of how the dissertation advisor was selected. Based on students' reports, some said that they were given an initial academic advisor (e.g., the program director, a professor) upon admission; others said they did not have one. Students receive funding from three major sources: research assistantships, teaching assistantships, or scholarships. Not all current participants have funding. Compared with natural sciences students who work in the lab of their advisors, social sciences students are more scattered. None of the social sciences participants said their topic was given to them by their advisor.

Gabby. She is a 53-year-old female. She was supposed to be in her second year in the environmental social sciences (ESS) program at ASU, but at the time of her interview, which was the fourth semester, she had been accepted by the University of Brianna (UB, pseudo name). She has had some unusual personal experiences. She was forced to drop out of school by her mother when she was 13. Her father was an architect and she worked in her father's office most of the time. At 43, she decided to return to school in order to look better in a custody battle with her former husband. She started at a community college and originally wanted to major in architecture, as she had some background in it. When she went into the architecture program, the staff suggested that pursuing a Master's Degree would work best for her, as it took only two years to earn a Bachelor's Degree in

urban planning compared to four years in architecture. She learned about urban planning and became interested in it. Besides, she felt that her father was a great architect and it would be too difficult for her to study the same profession: “It was very hard for me because I felt I could never be as good as him.” These considerations made her to decide to major in urban planning rather than architecture. Besides, she said she did not want to stay in undergraduate programs for too long as her undergraduate classmates did not treat her well. After she completed her undergraduate degree in two years, she went into the Master’s program in urban planning. During her studies, she decided to pursue a Ph.D. degree and teach at a university or college:

> I saw urban planning being mostly an economical developer. And I felt that was not what I wanted to do, that was not my approach to address the issues in urban planning, the urban issues. So I felt that getting a Ph.D. and making a difference through research, through writing, and through teaching would be a better way to address urban problems. (Gabby, March 19, 2012)

She decided to apply for the Ph.D. in environmental social sciences, as her son did not want to move and this program seemed to work best for her compared with the other programs at ASU. This program was quite new and interdisciplinary. Upon admission, everyone was assigned the same advisor: “It seems everyone I've talked to has to work, initially at least, with this professor. There has been some difficulty working around him

or having other people chairs. That's what I've heard from my classmates" (March 19, 2012). She described her major difficulty was to find a professor to talk to about her ideas:

> I had very few opportunities to meet with my mentor, the designated mentor, each time I would go to these other professors, it is just sort of tried to discuss the work I might do with them… it was just very very hard to make any connections with my professors. They either did not have time at that moment, and then each time I tried to approach them, they were never available, or they just said that our work was incompatible. (Gabby, March 19, 2012)

She had identified a dissertation topic area: the impact of courtyard buildings on the personal relationships and lifestyles of the residents. She described how this topic came from her disciplinary learning, conversations with colleagues, and her previous working experience in her father's architecture office:

> This is something I came to it myself really. It came out of discussions with my colleagues. It came out of work I have done: there is one planning professor, whom I just have conversation with him and him saying what I was doing and asking what kind of work I was doing or thinking of my dissertation. He said something that made a big impact. Don't reinvent yourself. Find something that builds on what you already know, what you already done. Don't start all over

again. This could be a progressive work. So I started to think the work I had done and trying to find a natural progression to that. (Gabby, March 19, 2012)

Peer mentoring and self-learning played large roles in her Ph.D. experience. She described several students in her program with whom she had developed a mentoring relationship. One of her closest friends, who was about her age, transferred to the same university that she was transferring into, and that friend had encouraged her to apply. She said: “So one of the things that my friend and I, the one in UB, has said is we are very happy to be in a program in UB where we believe we will not have to teach ourselves anymore” (Gabby, March 19, 2012).

I also asked Gabby if she could change her dissertation if one of the professors at ASU was more supportive, and her response was affirmative. In her selection of the Ph.D. program, she mentioned the importance of the location and consideration of her family. She researched the website and the faculty members, but her description in this respect was much weaker than her description of her concern for her family. As there were only three programs at ASU, she chose ESS as a better option than the other two. This choice seemed more of a convenience than an optimal match between her background and the program. Her departure from this program and her transferring to the UB program appeared to be for the same reason: more support. It is not clear from Gabby’s story what made all the professors in her program not want to help, but if she had known what she

shared in the interview, that the students did not get enough support in the program, then she probably would not have applied to the program.

With regard to Gabby's experience with dissertation topic selection, she mainly resorted to her previous experience of working in her father's architecture office because she did not want to "reinvent" herself. In this process, conversations with peers and professors other than her advisor also seemed to play a facilitating role. But she decided to transfer anyway. For most students, locating a dissertation topic will help end their period of aimlessness and focus them on their most important dissertation research; however, that was not the case for Gabby. She had identified her dissertation topic and was willing to revise it if needed. Although she had met some peers and developed facilitative relationships with them, she needed the advisor's support and that need was never met; hence, she transferred.

Karen. She is 52 years old and in her third year of the Ph.D. in sociology. She decided on the area of her dissertation project, but not on the specific dissertation topic. She had worked as a mechanical engineer for 19 years, but she did not like it, nor did she know what she wanted to do with her life. When she was reading a biography of an anthropologist and physician, she was inspired by the character in the book and became interested in anthropology.

> I read this at about my middle forties. I was, here is this guy of my age, and he got this international organization. It is great work…. It just got me thinking, okay, what's happened to my life that I just kind of, what do I do to make a difference to them? So, you know, I knew I kind of wanted to do research just shed some lights on things that I might have a unique perspective on. (Karen, March 28, 2012)

She talked to her sister who was sociology major, and her sister told her that she might like sociology as it has a lot in common with anthropology. She then went to her previous undergraduate university (also her home state university) for the Master's Degree as they "just happen to have a Master's program in sociology" (Karen, March 28, 2012). Her Master's thesis was about substance users and how that affected their family relationships. One reason she came to this topic was because she had a brother who was a substance user. At the time she was finishing her Master's program, she felt the Master's Degree could not give her enough advantage in finding a job that looked interesting and, "plus that was 2008. You know, the economy was to start early to go downhill, and I lost my job, and so I thought: 'well, you know maybe I should just continue on'" (Karen, March 28, 2012).

Karen's description of her dissertation topic idea sounded somewhat vague:

> Maybe retirement and work, because you know women's world has changed so much in my life time. And a lot of women did not work when I was a little kid. A lot of women did not work. So women's retirement hasn't been studied as much as men's retirement. So it would be interesting now, you know, I think in my generation, most women in my generation have worked and so there started to be more and more data available to look more at women and retirement and health. (Karen, March 28, 2012)

As her advisor also participated in the interview, I asked the advisor, Morgan, for verification. She confirmed that Karen's interest was in medical sociology and Karen may be using some publically available databases: "She mentioned to me this week, she has some idea on aging and house. So I think yes, I think her project is more likely linking aging and house concerns" (Morgan, March 28, 2012).

I also asked Karen about how she came to this dissertation topic idea. She said she was originally interested in substance abuse in families, but that interest was replaced by a more practical need to pass the comprehensive exam in which health was one of the topics to be examined, and all the courses in the first two years were about health. She then quickly switched to health in the second semester. She did not have sustained support from a specific faculty member. She was matched to a professor, but she said that the professor mainly worked in the downtown campus, not the main campus where she

came often; hence, she seldom met with that advisor. Later, the program was in the process of disestablishment and a lot of professors were leaving. Morgan was one of Karen's course teachers and Karen also worked on a quantitative project that Morgan initiated as Karen had some quantitative background needed for the project. At that time of the disestablishment, Morgan contacted her and asked what her future plans were, and she decided to work with Morgan as the conversation went on.

For Karen, she was in her sixth semester and she was still developing her topic. One of the major influences of her interests on health was motivated by the coursework and the pressure to pass the comprehensive exam. She was also concerned about not collecting the data on her own, as she had a painful experience doing so with her Master's thesis. Throughout Karen's narrative, it feels as though she lacks enough passion for her field, doing research with a particular advisor, or selecting a particular dissertation topic. Her choices seemed to be more, if not only, based on convenience. Her personal experience, including having a substance user in the family and having a sister in sociology, and even her personal health conditions, have been influential in her development and identification of her dissertation topic. It is great that Karen's family and her advisor have given her advice on the important decisions, but what is missing here is Karen's agency to be actively involved in making those important decisions and

identifying what she wanted to pursue in her dissertation project. That may be one important reason that she had not settled down on a specific topic in her sixth semester.

Mike. He is 38 years old and in his third year of the Ph.D. in the math education program in the School of Mathematical and Statistical Sciences. He had a major in math and a minor in physics as an undergraduate. After that, he found a job in an aerospace laboratory for a few years. Then some family situation happened and he had to move to a place where there was no industry "in the middle of nowhere" (Mike, April 9, 2012). All of the people in that place were either children or senior citizens. He started to think about what job he could do there and the idea of being a teacher popped up. He said he always felt somewhere at the back of his mind that he would return to teach, but he did not expect this to happen so soon. He applied to a few community colleges in that area and one college accepted him because it was very hard to find a math teacher. The principle, however, requested that Mike get a Master's Degree in order to be a real full-time teacher. Mike earned his degree at a nearby school and taught in a few colleges in that area. Eight years later, he started to feel that he could not help his students any longer and he felt an urge to return to school and continue to gain his Ph.D.:

> I got to a point, I was like, okay, I know the mathematics and I know the science well, and I am teaching okay, but I'm trying to understand why it is so difficult for students, then how can I be a better mentor for teachers. I mean I never had the

> theoretical background. I just kind of go and started teaching, and kind of learned by doing, but that's what motivated to start here [ASU]. (Mike, April 9, 2012)

ASU was the only place that he applied to because of the reputation of the program and the location. He wanted to move out from his previous place and find a place where he could start a family.

> I wanted to help students; in the same time, I don't want to go to a college or a university not too locally to get a Ph.D. I actually wanted to move. And then I heard ASU is a really good school. So I decided. I knew eventually if I wanted to put my roots down here, this is a place where you can raise a family; you can get married; you can find somebody. It's possible. You don't have the age issue like, okay, everyone is a senior citizen. It was a combination of factors which made me to come here. (Mike, April 9, 2012)

During his campus visit, he was introduced to his advisor whose project on K-12 educators sounded very interesting to him. He worked with this advisor for one semester and then for funding concerns, he was “loaned” or made to transfer to another advisor whose project relied a lot on technology. After working with the second advisor for a while, Mike’s interest waned. He thought he liked it but not to the degree that he wanted to spend the rest of his life in that area. Besides, he found out that continuing in that direction would rely on techniques that could sometimes be out of his control:

> There is nothing to do because there were technical problems, which was also when I started to think this may not be a fruitful thing because you kind of depend on this thing actually working as it was supposed to. I was thinking I don't really want to have a thesis dependent on that. (Mike, April 9, 2012)

He still wanted to return to his first advisor and his first advisor also realized that the K-12 project still had funding to hire him as a research assistant. He then returned to his first advisor.

His dissertation topic was on how teachers change their goals and practices as their content knowledge increases. As a teacher himself, he realized his own approaches to teaching had changed as his knowledge changed:

> Because I remember as a teacher before, I thought if I explained really well, explained every step clearly, that's a great way to teach. After I learnt a lot about the things, I know I am not doing them the service, because I've explained to them, I've left them nothing to think. (Mike, April 9, 2012)

Based on his experience and the observation of other teachers, he believed teachers have good intentions for their students in the first place, but their goals and practices change as their knowledge in math pedagogy increases. He originally had several interests including mathematical knowledge, goals, teacher beliefs, and practices. His committee helped him to narrow it down, and the way his advisor phrased questions in the qualifying exam

made him realize that focusing on goals and mathematical knowledge in teaching is good enough for a dissertation project:

> How it came so clear is through the written exam which my advisor wrote up….
>
> The other part is they [the committee] told me is that we've narrowed it for you.
>
> In other words, they said: "Trying to do beliefs and goals and everything is just too big and too hard. We want you to focus on goals and mathematical knowledge for teaching." (Mike, April 9, 2012)

To summarize, Mike returned to the university with a hope to further his professional knowledge and move out of the place of "only children and senior citizens." As his disciplinary knowledge increased, he identified more specific areas and he also developed a sense of the type of topic he wanted to avoid—having his dissertation relying on some particular techniques. Those areas were further refined through his interaction with his committees during the comprehensive exam. After the exam, he saw his dissertation topic much more clearly.

Jennifer. She is 29 years old, in the third year of her Ph.D. in justice and social inquiry. She is a bilingual speaker of Spanish and English. Jennifer came from a low-income family and she was raised by her stepfather. Her father and grandfather were very supportive of her education because they saw the relationship between education and income stability. In Jennifer's account of her educational experiences and the

selection of the dissertation topic, her Ph.D. advisor, Miller, played an unusual role. He was a Native American. Jennifer met him when she was 18 and they have been in touch since. She respected him as a professor, a mentor, and a role model for a minority. Jennifer was interested in issues related to ethnicity and identity. She did her Master's at University of California (UC, pseudo name). Miller used to work there too. They knew each other, but because of administrative issues, Miller was not on Jennifer's committee. Jennifer's Master's thesis and dissertation are on the same issue, but from different angles. When Miller moved from UC to ASU in 2008, he invited Jennifer to come over for the Ph.D. Jennifer applied and went in 2009. Her dissertation topic was decided before her official admission. Both Miller and she believed that she should write about what had happened at UC:

> In the end, those students knew that I was interested in continuing the study. Several of them asked me if I could write my dissertation about those issues because they wanted to make sure nobody has forgotten was happening there and why what happened on campus is reflective of what people struggle more largely in the state. So it was, I think, the students kind of hoped that their stories be told and they knew Dr. XXX would be a great person to guide that, and in a confusing kind of way, both he and I are asked to do this work. We knew this is important and I mean if you would see like this, but I see this dissertation fulfilling those

> promises, but also honoring their struggles, and making sure that there is a witness. (Jennifer, March 22, 2012)

In Jennifer's case, her topic was greatly influenced by her personal background, education, and the background and interests of her advisor. As Jennifer's major was a social science field, it allowed her to explore the social issues that she saw as most pressing and needing to be resolved. Her selection of her dissertation topic was a natural derivation from her sustained interest and work in this area. Because she decided to write on an event that affected the people she knew and care about, it gave her a sense of mission fulfillment.

Summary of social science students' experiences. For social sciences students, their personal experience or doubts (e.g., identity issues, age issues, and professional experiences) are an important source of inspiration for their dissertation topic selection. Participants either used their own life experiences (Mike, Jennifer, Karen, and Gabby) and/or their observations (Mike, Jennifer, and Karen) as the research problem of their dissertation. In Gabby's case, her father was an architect and architecture was her initial interest when she returned to school. She changed it to urban planning and then to environmental social science, but all along the way, her previous experience in her father's office was an importance inspiration for her dissertation topic choice. In Karen's case, she is 52 and had health issues herself. Her personal experiences together with her

observation of an increasing number of aged women made her inclined to investigate women's health and retirement for her dissertation. In Mike's case, he returned to school to further his professional development as a math teacher, and his dissertation topic was trying to answer a question he experienced during his teaching years. For Jennifer, she came from a minority family and she spent all of her career on ethnicity and identity issues pertaining to a group that she loved and wanted to stand up for. The field of social sciences allows these current students to explore topics that are more pertinent to themselves as a social being. Because of this, students are more likely to see themselves as fulfilling a mission. Some of them talked about changing the current practice by teaching the younger generation at a university (i.e., Gabby, Karen, and Mike); some of them see their project as a channel to document and reveal the injustices that people they care about experienced (i.e., Jennifer). Hence, for students in social sciences, their dissertation projects are not only an academic achievement but also carry personal meaning.

Coursework has only been discussed on a few occasions. Three of the four participants (Gabby, Karen, and Mike) returned to school after years and even decades working with a strong background in natural sciences and engineering. When they returned to school, they started a new major. Gabby did not have a major, as she withdrew from school at 13. When she returned to school at 43 with some technical

background in architecture, she chose urban planning, and her Ph.D. program was in environmental social sciences. Karen worked in engineering for 19 years and returned to school for the sociology program. Mike had a science background and worked in an aerospace office for a few years. In his new career as a math teacher, he chose math education for his Master's and Ph.D. The consistency of majors observed in the natural sciences participants was not the norm for the students in social sciences.

Along with the students' restarts with new majors—not dismissing the possible relationship between the old major and the new one— three students (Gabby, Karen, and Mike) returned to school with the goal of changing their previous life situations. For Gabby, the most direct reason she returned to school was to win the custody of her children. Karen returned to school to save herself from a job she had not enjoyed for 19 years. Mike's motivation was that he wanted to get out of the place where he had lived for eight years and where he could only see children and senior citizens. For them, going back to school was a good way to get out of situations where they were unhappy.

Some of these social sciences students also noticed the constraining factors in their search for dissertation topics, that is, the availability of data and the reliability of tools. For Mike, seeing how one of his projects could not progress well due to technical problems, he realized that he did not want to work on that area for his dissertation. Karen learned an important lesson from her Master's thesis, which was the challenge of

collecting some survey responses on her own. For her dissertation project, she then chose to work on a publicly available database.

In summation, the results for the social sciences students showed the increasing importance of students' personal lives on the selection of their dissertation topics. The students' topics tended to be areas that related to them personally. The line between personal and professional life is less clear for social science students than for natural sciences students.

Humanities: Negotiation between one's preferences and faculty strength.

The boundary between humanities and social sciences research is not always clear as researchers borrow and contribute to each other's discipline on a regular basis. For this particular study, I included one student in history and two students in literature in humanities. Based on the student's description of the topic, I am not too sure if I should place the history student in humanities or social sciences. My decision to place her in the humanities camp was mainly because her program requirements is more similar to the literature program in the current research than the four social sciences programs. For the two humanities programs, the students are expected to read a list of books determined by the program that may or may not be related to their dissertation topic. The exam and the students' dissertation topic can bear little relevance. Nevertheless, there are still some program differences. For history, students need to pass the qualifying exam, submit a

portfolio for the secondary field based on a designated reading list and defend it, and submit a dissertation prospectus and defend it.[9] For the Chinese program[10], students are supposed to choose three of the fields within their program and one field outside of their program and then be examined in the four fields by four separate faculty members. Students are also expected to take a foreign language exam. After that, students take the comprehensive exam given by a supervisory committee. Finally, they hold a dissertation proposal defense and a dissertation defense. In other words, compared with other programs reviewed in the current research, these two humanities programs have more hurdles for students to overcome before the official dissertation topic selection stage.

Rebecca. She is 32 years old and in her third year of the Ph.D. program in history in the School of Historical, Philosophical and Religious Studies. She originally started her undergraduate in physics and astronomy at North America University (NRU, pseudo name), and transferred to ASU for the same program, but her GPA was not high enough. She became interested in Native Americans after taking an elective course during her undergraduate studies. She wanted to become a teacher for Native Americans since. She then applied for Native American graduate programs across the country. She received a few offers and decided to go to the program that offers the best admission package. She

---

[9] Information retrieved from the university's website.

[10] Information retrieved from the university's website.

went there for the Master's program and then continued with its Ph.D. program. After one year, she felt she was not happy for reasons she did not want to reveal. She then contacted her current advisor, Kevin, and he encouraged her to apply for the history program at ASU. Rebecca and Kevin had known each other since their undergraduate years and they had been in contact ever since.

Rebecca defended her dissertation prospectus in the 2011 fall semester. Her dissertation topic compares diseases in Europe with smallpox among the Hopi Indians. Her development of this topic was a gradual realization. When she started her graduate study, she was interested in Native American studies and then she developed an interest in history. She was thinking about doing a historical study in South or North America, yet decided that she needed to focus on a particular group, which she later identified as the Hopi. However, she said her particular dissertation topic idea for a comparative study emerged as she was watching a documentary about a disease that Europeans brought to Native Americans. She then had discussions with her advisor and decided to explore this idea as her topic. Her committee members were related to her dissertation topic in important ways. For example, one of the committee members was chosen because of the type of history she was interested in:

> And in my original decision of my dissertation, I was going to focus on the Navaho. But by May, I realized I could not do Navajo, I would do Hopi history.

> And there is a professor at NRU who does Hopi history, and so I contacted him in May, and he agreed to. (Rebecca, March 21, 2012)

The most passionate account of Rebecca's description is her interest in teaching and working with Native Americans:

> I would like to be able to teach at a place, like NRU. That is the reason I started graduate school, the reason I decided to do all of this is [be]cause I want to teach. It was one of the Native American classes I took while I was an undergrad that it was during that I [was] just coming across so many ideas, like history, I'd never even heard about it before. And seeing that there are certain destructive cycles, kind of like [how] Americans treat Native Americans and native nations, and realizing that in order to break those cycles, we have to learn about it. (Rebecca, March 21, 2012)

NRU is a place with a high concentration of Native Americans, and when I specifically asked whether she was considering teaching at NRU, she expressed her love of the city and the university: "Well, I love the city. I love NRU. And NRU, since it's close to the Navaho nation and Hopi tribes, there are a lot of native students there" (Rebecca, March 21, 2012).

To summarize, Rebecca was inspired to learn and teach Native Americans after she attended one course on Native American studies as a natural sciences undergraduate.

Although she graduated with a natural sciences degree, she decided to apply to Native American programs for her Master's and continued into history for her Ph.D. As her knowledge of the subjects in history increases, she began to develop some interest areas, and her dissertation topic idea appeared when she was watching a documentary on a similar topic. As her thoughts of the dissertation topic became clearer, her advisor and she started to include other faculty who worked in relevant areas and the inclusion of those faculty members, in turn, further strengthened certain aspects of the exploration of the dissertation topic.

Ting. She was 25 years old in her third year of the Ph.D. program in Chinese. She originally came from mailand China in 2007. After she finished the Master's program, she applied for continuation to the Ph.D. program, which started in 2009. She was interested in classical literature. She originally started her undergraduate work in computer science in a military university. She did not like it and she felt she preferred Chinese literature. She then transferred to the Chinese program in her hometown university in the second semester of her freshman year. Given how the Chinese university system works, she was behind her peers for one semester. However, she did not find the courses difficult for her even with a late start. Now her dissertation topic is about a story collection from the Tang period, which is regarded as classical Chinese literature, but that

was not always the case; she was more interested in comparative literature in her undergraduate studies:

> One day I was in a comparative literature class. I just felt I really love comparative literature, and I really want to be comparative literature professor in my future. (Ting, February 27, 2012)

That was an experience in her sophomore year. After that, she started to research the well-known comparative literature professors in China and examined their backgrounds. She found they all had overseas experiences, which introduced to her the possibility of overseas study. Seeing how an overseas Ph.D. teacher was valued in her department, attending courses of that teacher made her decide to apply overseas. It should be noted that her desire to study overseas expanded tremendously during this time.

> At that time, I thought I loved this area so much. I really wished I could be a professor in comparative literature. That was my sophomore year. I was thinking everyday how to become a professor in comparative literature. Then I went to search the CV of those well-known comparative literature professors. Originally, I thought if I worked hard and pass the entrance exam to the Master's program at Peking University, I would then be a professor. But when I checked the CV of all those famous scholars, I found they were all returnees somehow. They had been a visiting scholar or earned their Ph.D. overseas. Then we had a comparative

> literature Ph.D. who studied poetry criticism in Germany. Our department really paid high respect to him. I went there to listen to that professor's course. It was of high quality…. I felt my eyes had been broadened…. Then I had made up my mind to go overseas. (Ting, March 30, 2012, Translated by the researcher)

So her preference at this time was to go overseas and study comparative literature. She said at that time that no one around her had been abroad. She then started to use a search engine for relevant information and identified a well-known overseas English training institution located in Beijing. At 18, she carried her own luggage, went to Beijing, rented a small shared room, and took the summer training program in English. As all of the students who took those classes were preparing to go overseas, she got to know more of the procedures and information about the application process. Then she returned to her previous university, digested the material she learned from that English class, and prepared to take the TOEFL and GRE. When the first semester of her junior year was completed, she went to take another English training class at the same institute. This time, she actually heard one of the teachers there had graduated from Peking University. She contacted and consulted him.

That teacher asked, "Which university do you come from? Is it Peking University?" She said, "No." The teacher responded, "Then there is no hope" (March 30, 2012). She felt so disappointed. After a while, she thought, why can I not continue, given

how much effort I have already spent? She went to a professor in Russian literature in her university. She was not sure if this teacher had been to Russia, but that was the only person she could go to at the time. That teacher dismissed her, saying, “There are many Peking University graduates who have tried to apply for the Ph.D. in comparative literature and failed. You don’t have any hope.” She felt very sad at that time. But she decided to continue, “The more you guys say no, the more I want to show you I can do it” (March 30, 2012). She thought the worst scenario was that she would be rejected, but she thought the preparation process improved her English and made her competitive for good Master’s programs in China.

During her actual application process, however, she found the requirements for the Ph.D. in comparative literature were extremely high and noticed that the Chinese program in East Asian studies would be a good alternative:

> Later I found out, if you want to go to comparative literature department, you have to know three or four languages already. And I found out, damn it's so hard. But later I found out I could go to East Asian departments and still do the things I like, you know, like apply folklore studies to Chinese stories, so I figure out, I like this too, why not, so I just take the exams, read the papers, and sent out my applications. (Ting, February 28, 2012)

She then received a few offers and ASU's Chinese program had a professor she greatly admired—"like a mountain in Flagstaff, the field's highest peak" (Ting, February 27, 2012). She accepted the offer immediately. His advisor specialized in classical Chinese literature, a field Ting was interested in as well.

Through her readings, her interest gradually changed or narrowed from medieval literature to a particular collection of stories. She explained this idea to her advisor and received a positive response. She then kept exploring. When she was taking a course on a literature series in the fourth semester, she noticed a thematic reduction approach to analyzing folklore in European short stories. She found it interesting and noticed that no one had applied that perspective to Chinese medieval stories in which she expected similar patterns. She mentioned this idea to her advisors, and they thought to have the instructor of the literature series on Ting's committee to give her more advice on the refinement of the topic.

To summarize, in Ting's case, her desire to be successful had surpassed all of the constraints she had faced. Her specific goal of doing comparative literature or classical literature or becoming a professor in China or elsewhere kept evolving all the time, but every step she took was geared toward the ultimate goal of being a university professor and studying literature. Her selection of the dissertation topic was an accumulation of her

previous efforts to study abroad and to work with a well-known professor as she increased her content knowledge in the field.

Aaron. He was a male American student in the second year PhD in Chinese. He studied Chinese as a foreign language in his undergraduate years. Toward the end of his undergraduate studies, he thought about the potential jobs in industry, business, government, and education, and he decided he wanted to be a language teacher. He also knew he wanted to teach at a collegiate level, which meant earning a Master's Degree. He talked about his idea with one of the professors he respected and had a good relation with. At first, the professor discouraged him, as he thought Aaron could find a good job with his Chinese proficiency and graduate school was too much work. After the professor saw that Aaron was serious about it, he became very supportive and recommended him to a Chinese professor of Chinese pedagogy at ASU. Aaron also applied to other programs, but ASU provided him with funding. By the time he finished his Master's degree, he decided to continue for two reasons: a) He thought that, as he was getting a graduate degree, he should go through the whole process and get a terminal degree, and b) he was not too sure what he really wanted to do after graduation. However, he did experience some struggles within himself for continuing on to the Ph.D. program at ASU. He did not consider applying for Chinese pedagogy in other programs because his conference experience in pedagogy was not too pleasant. He did not think those presentations were

really interesting to him. Besides, he was very familiar with the staff and faculty at ASU. But if he did choose to continue with the Ph.D. in Chinese at ASU, he needed to study Chinese literature: "I told them [peers and friends] my concerns of getting a Ph.D. in literature because ultimately it was a worthless degree" (Aaron, February 28, 2012). Another practical reason is that the graduate faculties in Chinese were mainly in literature. Several professors in the Chinese Department had pulled him aside and told him to switch from Chinese pedagogy to literature for his Ph.D. Aaron's later advisor, Hamilton, also confirmed in the interview that he did push Aaron to the literature track because he saw talents in him doing literature research and he considered it a waste of his talent to be just a language teacher. Eventually, Aaron decided to start his Ph.D. in Chinese literature. He was interested in martial arts as a popular genre and read about it extensively in his free time. At first, he wanted to write about it because "it would be much more interesting for me to write about and read about" (Aaron, February 28, 2012). But when he talked about this idea to professor Wang (pseudo name) in his department, he was discouraged.

> But I was discouraged by a professor (Wang) here who told me basically if I do that, I basically have to do everything on my own, because no one really does that. No one has any real background in modern literature, so I chose not to do that and just go with what our strength is here. (Aaron, March 16, 2012)

No faculty members were working on the martial arts in the more recent Chinese literature that he was interested in. He would need to study more on his own, and he chose not to. Interestingly, when he talked to his advisor, Hamilton, he was encouraged:

> But then yesterday when I talked to my advisor, he said: "Yeah, you can still do that, if you want to bring that in"…. The professor who my advisor told me to go too, because he is the person who told me not to do it in the first place. So my advisor told me to go to talk to Wang, and Wang is the one who told me do not do it because no one is working on that here. (Aaron, March 16, 2012)

In other words, Aaron's advisor encouraged him to work on the idea that he initially was interested in. Hamilton also suggested that Aaron contact Professor Wang for advice. Aaron found it funny because Wang previously said no one did that at ASU. Eventually, Aaron decided to pursue the martial arts idea, but he did not plan to include Wang on his committee.

By the time of the interview, Aaron felt he had mapped out the developments of martial arts in Chinese literature, but still need to identify the framework:

> I kind of mapped out. I kind of started from the beginning with *Shi Ji*. I kind of go back to Yuan Dynasty, and looked at the proto marshal artists, with the wondering, they are usually translated as the night errand.... Then you can go further into more recent history, look at the novel of 1950s, look at how, but I looked at that: I

could potentially do something but I don't know what the structure would look like. I don’t know how to put that together, than just say, oh a novel from the 1950s isn't like a novel from the 1900s. Of course, they are the same. I am curious about what kind of framework it is going to be there. (Aaron, February 28, 2012)

Aaron’s advisor also commented on his topic: “Now he is going to work in an area where I’m marginally okay with, but he [will] probably work mostly with Professor Xiang in Chinese fiction” (Hamilton, April 12, 2012). Hamilton saw it as his responsibility to encourage students to go with their “imagination” and invite colleagues to help.

In Aaron’s case, he chose to apply to be a graduate student because he wanted to teach, and he chose ASU’s program because it provided him with funding. He wanted to do a Ph.D. but deciding to focus on literature had been difficult for him. Although he initially thought a literature degree was not worth it, he was serious enough about his study. He decided to choose martial arts as his dissertation topic area out of his own interest. When he knew that no one was really an expert on this topic, he thought of giving up, but he continued on with the assurance and supportive comments of his advisor. His dissertation topic appeared to be the result of his negotiation of his interest, his perception of the available resources, and the investment he wanted to make.

Summary of humanities students' experiences. Like most participants in social sciences, the humanities participants changed programs as well. Rebecca earned her bachelor's in physics and astrology; Ting spent her first undergraduate semester in computer sciences; and Aaron switched from Chinese pedagogy to Chinese literature. They all wanted to become professors, which was one of the main reasons they wanted to earn a Ph.D. degree.

In their dissertation topic selection processes, their own aesthetic preferences and the research interests of the professors in their programs are the two most important factors they considered. For students, their own interests come from their personal reading or reading for a course. For example, Aaron chose to study martial arts because this is an area in which he is interested. He reads Chinese martial arts novels, draws pictures of the characters, and creates similar martial arts fictions. Rebecca's interest in Native Americans was related to the Native American community in the area of her undergraduate study and a course on Native Americans. The humanities students also weighed heavily the faculty's strength in their dissertation topic selection. Aaron stated explicitly that he did not want to work in an area where no faculty specialized in his department. Ting also modified her interest in her application to the Master's program. In order to facilitate Gabby's interest, she found an external committee member.

For humanities students, their formal and informal reading provides them sources of inspiration. They resort to their own aesthetic preferences to make the initial judgment. After that, they will take into account the faculty strengths, and their final settlement on the topic is usually in an area that works for them, has their advisor's support, and overlaps with the strengths of the committee members.

Research Question 5: What is Advisors' Assumption of their Advisee's Dissertation Topic Selection Process?

The four advisor participants were referred to the researcher by their advisees, and none of the advisors indicated that they selected the dissertation topic for the students. Instead, they all said their advisees came to them with ideas and that they discussed those ideas with the students and offered suggestions.

Steven: Great knowledge of Lidan's academics.

Steven, a full professor in biology, served as advisor for Lidan. He has been working with doctoral students for 24 years. His philosophy of helping students is to train them to become independent thinkers and scientists. He stated:

> My goal is always when a student leaves my lab with a Ph.D., he or she should not be a student anymore but should be a colleague. So I should be able to talk to that person like a colleague: "You are not my student anymore. You are a professional scientist. That means you have to know your topic really well, better than me, actually." (Steven, March 15, 2012)

Steven mentioned the importance of helping students to find a topic they really like. When I asked him what he does if students lose interest in a topic they originally liked, he said that only the opposite has happened:

> Actually it's the opposite. Now you get a good topic, and you are excited about it. It kind of becomes your baby. It becomes personal. The more you learn about it, the more you want to learn about it. So your motivation increases. Usually it works that way. Yeah, it is always. (Steven, March15, 2012)

Steven pointed out two criteria that students can use to decide whether they have found a good topic. One is whether the dissertation topic can resolve a problem in the field. If research about the topic makes no contribution to the field, he would not consider that topic interesting or worthy of the time a student will spend to investigate it. The other is whether the student is excited about the topic. Only if the student is excited will he or she feel fulfilled by doing the research and want to continue with it. He said that the key to finding a topic that meets these criteria is reading. He said a student's reading is the source of good ideas: "They have to really read what has been published in that area, understand it, think of it, and essentially find what we know and what do we not know" (Steven, March 15, 2012).

Students in Steven's lab have regular weekly meetings, and he meets students individually if necessary. He encourages students to come up with their own ideas and write grant proposals. Lidan succeeded in obtaining a small amount of funding, but she got frustrated with proposal writing. Steven was aware of Lidan's success and made positive comments, but he did not mention Lidan's subsequent frustration with writing

proposals. Concerning Lidan's dissertation ideas, Steven understood that the first idea did not work out well because she planned to use an unfamiliar instrument. He said that the new instrument was expected to work well, but it did not. This opinion concurs with Lidan's. The only difference is it is not clear whether Steven knows Lidan's true reactions to that failed experiment. She said that she learned a good lesson, and she deliberately chose to use a conventional instrument for her second dissertation topic idea. Steven is well aware of the progress of Lidan's experiment. He knows that Lidan is doing a pilot study, and if the results are positive, she will proceed with her dissertation. Lidan also mentioned she did not want to stay in academia because she resents grant writing; she wanted to find a post-doc opportunity after graduation and eventually work in industry.

Overall, Steven preaches what he believes. He encourages students' independence and their exploration in pursuit of knowledge, and he practices that philosophy in his advising. In Lidan's case, he encouraged her to write independent proposals and experiment with new techniques. He has a good knowledge of Lidan's academic background, such as the acceptance of some of her proposals, the reason for a failed experiment, and the progress of another experiment. But his narratives did not show that he knows enough about Lidan's emotional reactions, such as her more reserved attitude

about choosing instruments due to the first failure. In addition, he did not mention Lidan's career goals and the reasoning behind them.

Philip: Professional, academic, and personal knowledge of Cory.

Philip, a full professor in geological sciences, is Cory's advisor. He has been working with doctoral students for 17 years. Philip's overall goal is to help students to identify a topic that meets their interests and has good potential for funding. He emphasized the criteria for evaluating an interest:

> So we have interests. We'd like to study earthquakes, the effect of larger earthquakes, and the history of larger earthquakes. But we cannot study just anything. We have to study things that are of interest to our colleagues. One way that it's of interest to our colleagues is if there is some money available. (Philip, April 11, 2012)

Philip said his program is very structured and that he always tries to provide support for students to overcome those hurdles. He called his method of advising "organic." He does not have a specific plan for each student, and he encourages independence in Ph.D. learning:

> They must be more independent, so this takes time. Then, you know the first hurdle is in the second semester; they have to submit some abstracts of these two projects. Then in the fourth semester, they have to take the exam. So if they are

> successful, then we can just work together without any worries about administration. If they are not, we have to find ways to help, improve their preparations so they can do it again. (Philip, April 11, 2012)

He said that he met Cory during his senior year when Cory was taking a course with him. He also mentioned Cory's master's degree thesis and stated that he knew Cory was not too happy about it for a number of reasons, including that it did not match his core expertise and the fact that he invited an external committee member, which did not work out too well. He also mentioned that this time Cory's dissertation topic matches his core expertise, something that Cory discussed as well. His description of Cory's plan was not as clear as Cory's portrayal of the topic as a "sweet spot" related to the type of life and the type of work he wants, but he was very aware that Cory preferred working for a big oil company rather than being a professor.

Philip's narration about Cory's academic development echoed Cory's own. It is because of such knowledge that, as Cory said, his dissertation topic came up in a discussion with his advisor and he is very happy with his choice.

Morgan: Good Knowledge of Karen's Academics.

Morgan, a full professor in sociology, was Karen's advisor. She has been working with Ph.D. students for 34 years. She believes that most students in her department struggled with finding the match between their research questions and the available

dataset. In her department, most students choose a quantitative design for their research, which means that they need to find an existing database (usually a national database) to answer their research questions instead of collecting the data themselves as that would be extremely expensive, time-consuming, and challenging. Morgan explained:

> I think very often what students do is they sort out, try to mix and match the things that are interesting to them and then what databases are available. Then they go back and say, "Okay, of the things that I am most interested in, are there any databases that I can work with?" (Morgan, March 28, 2012)

When I asked her about how Karen was doing with her dissertation topic selection, she told me that "she [Karen] has not figured out her dissertation topic yet, but certainly her interest is with medical sociology, broadly defined, I would say" (Morgan, March 28, 2012).

When I asked her about advising Karen in her topic selection, she discussed Karen's possible choice of the topic and the database, and she mentioned using meetings as a way to facilitate the student's idea development. She explained:

> She will probably use some publicly available database because we talked about that. She probably won't collect her own data. Actually, the obesity data was the data that I collected. But, you know, she is looking through databases. She mentioned that to me this week. She has some idea on aging and health. So I think,

> yes, I think her project is more likely linking aging and health concerns. (Morgan, March 28, 2012)

Morgan noticed that students, including Karen, tried to match the research question with the public database as they made their topic selections. She said that Karen was trying to investigate a dataset she collected on aging and health concerns. Morgan's description of Karen's dissertation topic is similar to the one Karen provided. Karen said she wanted to study elderly women's health issues. She also mentioned that she did not want to collect the data herself. But Karen was not as explicit and did not seem to catch what her advisor valued most - "the good match." She talked about her research question and the instruments separately, but her advisor emphasized matching the two. It seems that Morgan played a safeguarding role, ensuring students' selection of a good match between research question and datasets. However, Morgan was not aware that Karen's interest in sociology was suggested by her sister and that she chose to work on substance abusers because her brother is one. These are important personal reasons for Karen's decisions. Although Morgan has a clear sense of Karen's potential research topic and the data collection, her understanding of Karen's selection of topics is limited because of the advising conferences she had with Karen.

Hamilton: Professional, academic, and personal knowledge of Aaron.

Hamilton, a full professor in Chinese, was Aaron's advisor. He has been working with Ph.D. students for 34 years. He emphasized students' genuine interests in their topics, which are the result of extensive reading and imagination. He offered support along the way, and he learned about new texts and theories with the students. He stated that he is devoted to deductive theories and methodologies, and this was reflected in his advising style as well. He explained:

> I pretty much let them decide what to do; I ask them what they are going to use as bases. Then I read the material myself, so I know what's going on. And then basically I just help them [find] texts. That's what I do. They read texts and I let them, and they talk to me about them. We talk about them. We get ideas from that. (Hamilton, April 12, 2012)

When I asked Hamilton about his advising experience with Aaron, he related that he advised Aaron to switch from pedagogy to literature. His narrative was very honest and consistent with Aaron's accounts. He stated, "I pushed him into literature" (Hamilton, April 12, 2012). He explained that he did this because he believed it was a waste of Aaron talent to let him continue learning Chinese as a foreign language education and be a language instructor for the rest of his life. He thought Aaron could become a literature professor in the future. He said that he was also aware of Aaron's interest in fiction and

his concerns about centering his dissertation on this topic due to the lack of faculty expertise available. He encouraged Aaron to pursue this interest because he knew a junior faculty member who worked in that area who could support Aaron and provide resources. He made this comment about soliciting colleagues' help in advising a student:

> As an advisor, you have the responsibility to the student, but you have to elicit your colleagues to help, and you have to want them to help, you have to want to hear dissident ideas; you want to hear something. (Hamilton, April 12, 2012)

Hamilton's devotion to deductive research, his advising style, and his beliefs about humanities discoveries were quite consistent: take the time, read about your interests, and be imaginative. These values were clearly reflected in his advising, as reflected in this statement:

> The greatest discoveries you make in a research are not planned. I think often there is…. If you are always goal-oriented and see things as instrumental, then you miss these moments when your mind can make this kind of intellectual leap and tie things together that had been disproved before. This is where humanities research is quite different than scientific research. I think humanities research, even for graduate students, is a lonely enterprise. (Hamilton, April 12, 2012)

As an advisor, Hamilton's understanding of Aaron's dissertation topic selection experience was remarkably identical to what Aaron said he experienced, including

Aaron's hesitation to do a Ph.D. in literature and write a dissertation on Chinese martial arts fiction. Aaron and Hamilton appeared to be in a much more frank relationship than many other advisor-advisee pairs. Because of the good communication between the two, Hamilton was able to provide the support Aaron needed concerning his dissertation topic selection and many other important decisions.

Summary of advisors' assumptions. Compared with students' stories, advisors in the three disciplines displayed many commonalities in their advising philosophies and approaches. None of the four advisors assigned a topic to the students; three of them mentioned the importance of students taking risks and become independent. Morgan did not mention this, but she also let students choose the dissertation topics. There was one main disciplinary difference: the two natural sciences advisors talked at length about funding and the need to select topics that are interesting to other scientists to increase one's chance to be funded, which speaks to the value of the project. This was not mentioned by the social sciences or the humanities professors. Morgan had a good understanding of her advisee's stated dissertation ideas but was not as cognizant of the hurdles the student faced or the reasons behind the topic idea. Steven understood the successes and failures of his advisee but not so much about his advisee actual thoughts, especially negative feelings derived from completing certain tasks. Hamilton and Philip understood almost every aspect of their advisees, including their personal, academic, and

professional concerns and plans. The primary responsibility of the advisor is to support the students academically, and all four advisors met the students regularly to provide support; however, their knowledge of the students differed. Because of these differences, the quality of advice they provided students concerning academics and their dissertation topic selections are likely to differ. Aaron almost walked away from his real interest because he did not want to work on a topic about which no one in his department was knowledgeable. Hamilton picked up on this and advised him accordingly instead of just "respecting his decisions." Doing a Ph.D. thesis requires multi-year commitment. The boundaries between students' personal concerns, professional goals, and academic interests are blurry. A dissertation topic idea may appear as a sudden realization, and neither the advisor nor the student may even notice it. However, as the student interviews and survey responses indicate, the work can take months and even years. If advisors have an accurate understanding of their students along the way, the advice they provide to the students will be more efficient and helpful.

CHAPTER 6

CONCLUSIONS AND IMPLICATIONS

The purpose of this study was to investigate the invention process among second- and third-year dissertation writers in natural sciences, social sciences, and humanities fields at a large research university in the United States. I conducted a survey among 107 students, and approximately 80 students responded to the most critical questions on which this study focuses. I also conducted a case study of eleven students and four of their advisors in different disciplines. In this chapter, I integrate the survey and interview results to answer the bigger questions of how dissertation writers negotiate, conform, resist, or insist in their paths to invent a dissertation topic.

The following conclusions come from three kinds of data: 1) the general pattern that emerged in the survey responses; 2) students' narratives of their selections of doctoral programs and dissertation topics; and 3) advisors' perceptions of how the students selected their dissertation topics. Several dimensions of invention emerge in the present study. They are: 1) Invention as a process; 2) Discipline as the overarching boundary; 3) Conceptualization of the discipline; 4) Making a rational choice; 5) The effect of linguistic and cultural differences.

Conclusion 1: Invention as a Process

As the introduction chapter stated, I became extremely frustrated when I could not find my dissertation topic after two years into my Ph.D. program. The encouragement "it will come" only exasperated my frustration. When I heard it the first time, I thought "it" was a moment detached from the mundane world; now as the current research unfolds, "it" was in fact a moment rooted in one's disciplinary enculturation.

The survey results suggested that even students in the natural sciences—fields with shorter times-to-degree (Hoffer & Welch, 2006)—can spend over six months in their search for the right dissertation topic. In addition, not all participants in the research have identified their dissertation topic. A decent proportion of the respondents were still in the mid of searching and deciding on the dissertation topics.

The in-depth interviews revealed that several of their dissertation topic selection experiences can be traced back to the students' interests in their undergraduate studies, and one even to high school. For example, Ting was interested in classical Chinese in her undergraduate degree, and her interest narrowed to one collection of classical Chinese literature in her dissertation. Cory was interested in oil companies in high school, and that interest persists to his Ph.D.; he wanted to study a dissertation topic that would enable him to join an oil company after graduation. These stories show there was not a clear cut

in the development of one's ideas, if the students remained in the same field: The students' previous focus often inspired their later work.

This finding itself was not surprising; the literature in invention and decision making have ample evidence in this regard. For instance, LeFevre's (1987) categorization of invention theories identified three sources: the Platonic and internal dialogue perspectives attributed the source of invention to the individual; the collaborative perspective attributed it to the interaction between two or three people; and the social collective discussed social collectives as the source. All of the theories emphasized the process, conscious or unconscious, prior to the invention of new ideas. Flower and Hayes (1980) reiterated that discovery was the end result of the writers' previous effort searching their memories, forming concepts, and creating new ideas, while at the same time probing and understanding the constraints of the purpose, the audience, and the language itself. They also identified several representations that good writers address in the process, including a representation of the problem, of the rhetorical situation, and of one's purposes and goals. In a year-long study to identify the breakthrough points in four molecule labs led by six world-renown scientists, Dunbar (1997) found conceptual changes were the result of tinkering:

> The incremental steps involved in the cognition are often lost and forgotten, and the act of creation becomes a mythical entity in which the final step in the creative process is often seen as the cause of the new concept. (p. 15)

In Galotti's (2002) psychological study of how people made important decisions in real life, she also identified several phases in this process, including setting goals, gathering information, structuring the decision, and making a final choice; she emphasized this process was recursive and decision-makers could go through several rounds prior to the final decision.

It is worth mentioning here that both students and advisors need to be further educated on this issue. My own experience has suggested there are students who believe others have muses and I was therefore not alone in anxiously and mistakenly seeing my situation as shameful when I could not find an appropriate topic while the clock was ticking down. Advisors too, need to be better educated on this issue. In Isaac, Quinlan, and Walker's (1992) study of faculty perceptions of when they thought students started conceptualizing their dissertation projects, 59% indicated it was before the general exam, 21% while preparing, and 20% after. These perceptions were not supported by the students' real experiences, as 48% students indicated they started conceptualizing the dissertation topic before the exam, and 52% indicated it was after. In the current study, not all advisors have accurate perceptions of their students' real feelings, especially the

negative ones. Advisors with inaccurate perceptions are less likely to offer students the right kind of help. It is thus necessary to further educate advisors and students that the invention of a dissertation topic takes time and in fact, more than half of the current respondents in all disciplines stated they spent over six months in dissertation topic selection.

Conclusion 2: Discipline as the Overarching Boundary

The discipline a student studied was an important factor in students' doctoral experiences in a number of studies (e.g., Barr, 1984; Belcher, 1981; Casanave & Hubbard, 1992; Dong, 1998; Gardner, 2008a; Isaac, Koenigsknecht, Malaney, & Karras, 1989; Kozma, 1997; Prior, 1991). As a discourse community, each discipline has its own values, beliefs, conventions, structures and requirements. Students chose their dissertation topics within those boundaries.

In the present study, the first area that showed a difference between disciplines was the advisor's role in dissertation topic selection. The survey results suggested advisors in natural sciences were more involved in their dissertation topic selection than in the other two disciplines. 71.4 % of natural sciences students selected their advisors before their dissertation topics; 56.4% of them selected the topic with their advisors, 7.7% of them worked on a topic of their advisors, and 7.7% of them had the topic given to them by theirs advisors. In other words, over 70.0% of students in natural sciences had

different degrees of advisor intervention in their dissertation topic selection. This finding was consistent with previous survey studies (Berelson, 1960; Isaac, Quinlan, & Walker, 1992; Jenkins, Jordan, & Weiland, 1976).

However, when examining students' stories case by case, the current research posed some question as to the assumption that students in natural sciences receive topics from their advisors. Barr (1984) found chemistry students tend to receive topics whereas history students were more creative in selecting their own dissertation topics. Yet, in the current study, students in all disciplines, including natural sciences, demonstrated freedom of choice to different extents. For example, among the four students in natural sciences, Lidan and Cory's advisors did not give them a topic; instead, both advisors encouraged them to explore what interested them. Emily and Zhang both had their dissertation projects decided upon admission. It seemed they had no choice but to work on the one given by their advisor, but that was not true. Both of their programs provided students with a time period for them to decide on their advisor. If they did not like the topic, they were given the option to change their advisors. Neither of them changed their advisors.

Some might suggest that it must be the case that Emily and Zhang's advisors gave them the dissertation topic because they paid the students' tuitions and stipends. That was also not true. Among the four students, Zhang received a five-year Research Assistant

funding working on his advisor's project proposal (also his dissertation). Lidan and Cory sometimes received funding to work on their advisors' projects (not their dissertations); at other times, they had to teach to earn their living or applied for funding on their own. Emily was funded on her Fulbright scholarship for the first year and has been teaching for the rest of the time. There was no relationship between the source of the students' income and whether the topic was given by the advisor.

The second area of difference was the task completion status at the time of the dissertation. More students in natural sciences students had selected their advisor and dissertation topic and passed the oral exam than those in social sciences; social science students more than those in humanities. This finding confirmed the NSF's report (Hoffer & Welch, 2006) of total time to degree (TTD)[11] in different fields. For the academic year 2003, the median of TTD for physical sciences program was 7.9 years; for life sciences it was 8.3; for social sciences it was 10; and for humanities, 11.3 years. These statistics suggest that it took longer for humanities students to obtain their Ph.D. degrees. In the current study, there was also a growing trend in the length students spent searching for dissertation topics: natural sciences students appeared to be fastest and humanities students appeared to be the slowest. This trend further confirms that one reason

[11] TTD refers to total time elapsed since the baccalaureate to the doctorate.

humanities students has a longer TTD may be due to the time they spent prior to their final selection of a dissertation topic.

The last area of difference was how the dissertation topic was selected. In the qualitative section, the four natural sciences students selected their topics based on their sustained learning in their academic fields. However, the social issues that students encountered in life became the most important source of inspiration for social sciences students. For example, Jennifer studied minority identity and rights because of her own identity and life experiences. Mike studied teacher goals and teacher knowledge, an area that puzzled him in his professional experience prior to the Ph.D. admission. Using one's own experiences as a source of dissertation topic was a privilege afforded most to social sciences students. For the three students in humanities, Rebecca's experience was somehow similar to the social sciences students: She used to live in an area with high concentrations of Native Americans, and that proved her source of inspiration after she decided not to continue working in astronomy and physics.

LeFevre (1987) strongly advocated the social collective perspective on invention. She argued that ideas, knowledge, and language are all socially constructed. In the present study, the discipline provided the largest source of influence in students' dissertation topic selection. The discipline's influence on dissertation topic selection was

reflected in the distance between the involvement of advisors, the students' speed of progression, and the sources of the students' dissertation topic ideas.

Conclusion 3: Conceptualization of the Discipline

According to Kuhn (1970), normal sciences will not solve the pressing problems, such as the design of a lasting peace, mainly because these are problems probably without solutions; instead, normal sciences like to solve problems with a predicted solution, although what the solution actually is remains to be answered. He also emphasized that the predicted solution within the existing paradigm (e.g., knowledge, beliefs, values, and standards) was the criterion to choose research problems and to a large extent, "these are only problems that the community will admit as scientific and encourage its members to undertake" (p. 37). By this token, normal science researchers such as doctoral students cannot really choose whatever research problem is out there. They need to learn the values and standards in their disciplinary community to be able to identify the problems of interest to other researchers in their own discipline. This idea was explicitly spelled out in the interview with Philip, a geological sciences professor. He said researchers, including himself and Cory, needed to find research problems that were also interesting to other colleagues; one criterion of whether a topic was interesting enough was whether that project could be funded.

The advisor's role in initiating a student into the disciplinary conversation has proven to be critical. In a study to explore the apprenticeship model in doctoral education, Belcher (1994) found that one major difference between successful and less successful mentoring was whether the advisor and the student shared the conceptualization of the discourse community. For Belcher (1994), conceptualization does not mean the students needed to conform to every word the advisor said; rather it meant a student who is fully initiated into the discipline is familiar with the values, beliefs, and standards in the community and thus capable of fully participating in the community of practices. In the two less successful mentoring cases (Belcher, 1994), the students did not fully understand what the advisor expected and their participation in the disciplinary work was limited. In the current study, most of the current participants were highly satisfied with their advisors. However, when I linked the students' and advisor's accounts of their relation and the dissertation topic selection experience, some differences emerged.

The first difference was in the quality of communication between the advisors and advisees. Philip knew every major step in academics, Cory's true feelings about certain projects, as well as Cory's professional goals and concerns; Cory's account also suggested that he knew his advisor knew. This transparent communication has facilitated Cory's academic progress: He was the only second-year student among my interviewees who passed the qualifying exam, selected the dissertation topic, and defended the

dissertation prospectus. He also had more publications than other interviewees. In the case of Hamilton and Aaron, the advisor knew Aaron's concerns and interests well enough to suggest he work on his initial interest even though the student had decided to give up due to his perception of a lack of faculty working in that area. In comparison, Morgan's knowledge of Karen appeared to be limited to her completion of major tasks. She considered her responsibility mainly to be helping students find a good match between the research problem and the database.

The responsibility of a mentor is difficult to define and mentoring is a particularly customized experience (Council of Graduate Schools, 2004; Gardner, 2008a). The current four advisor-advisee dyads only revealed some of the dimensions of the mentoring relationship. The four advisors in the current study had knowledge of the completion status of students' academic tasks; only two of them (Hamilton and Philip) knew the students' professional goals, dissatisfaction, or concerns, even when the students did not talk about it. The sociocultural theory of learning (Casanave, 2002; Lave & Wengle, 1990; Norton, 2000) views learners as a whole person and states that learning occurs in learners' daily practices. Clearly, advisors are not solely responsible for the mentoring relationship. Yet the current four cases indicated students were most successful and the advising relation became most rewarding when the communication between the advisors and the

students was most transparent and honest at all levels (e.g., professional, academic, and personal).

The second difference was the students' disciplinary subject-knowledge. Tardy (2009) created a conceptual model for genre expertise which included rhetorical knowledge, subject-matter knowledge, process knowledge, and formal knowledge. Subject-knowledge is an essential component to mastering a genre. The same rule applies to topic invention. In Karen's case, her reason to return to school was because she did not want to be in engineering anymore. Her sister suggested sociology to her, and the university near her home offered this major. Her reasons for choosing to study aging and health issues included personal reasons and that she knew a relevant database. None of these justifications was related to the field of her discipline. That may be the reason she did not fully decide on her dissertation topic as a third-year student. Emily was another case. She chose to work with the advisor because some friends said the advisor worked in molecules. She did not have enough knowledge of how her advisor stood in the field that she is interested in, and she said yes. She later criticized the advisor's advising style and academic knowledge. If she had enough knowledge of the molecule field, she probably would have had a better judgment of her advisor's expertise from the beginning. In many other cases (e.g., Cory, Jennifer, Lidan, Ting), their dissertation topic is selected with a

much more matured knowledge of the field. This knowledge is crucial for their successful identification of a worthwhile scientific problem for the dissertation project.

Students' good conceptualization of the discipline is indispensable of their own academic learning and the help of their advisors. This knowledge is essential in the topic invention process and has to be acquired through continuous disciplinary participation.

Conclusion 4: Making a Rational Choice

Most dissertation guides in the market (e.g., Blanton, 1983; Bolker, 1998; Bowen & Rudenstine, 1992; Single, 2010) and three existing studies on dissertation topic selection (Isaac, Koenigsknecht, Malaney, & Karras, 1989; Kozma, 1997; Sessions, 1971) focused on the selection criteria. The purpose of these studies was to provide good advice to students in the hope they would therefore make rational choices. The current study also surveyed what students considered important in dissertation topic selection. Although there were some differences between disciplines or differences between the ideas of faculty and students, the students in the current study and previous studies (Isaac, Koenigsknecht, Malaney, & Karras, 1989; Kozma, 1997; Sessions, 1971) are found paying high attention to personal interest, publication potential, professional potential, as well as logistical concerns. These results suggest that students have good knowledge of the criteria in the selection of a dissertation topic. But such knowledge does not ensure them making a rational choice.

Emily's story is a case in point. She is the only participant who explicitly said she did not like the topic. She selected her advisor based on limited information from her several friends. Not long after she joined the lab, she found that her advisor did not care about students and lacked sufficient knowledge in the field. As that realization came in her first year, she could have done the lab rotation to explore other labs/advisors, but she did not. She said at that time she thought she would complete her degree sooner if she started to work on the dissertation project earlier. When I asked her whether she still thought so, she said she did not and commented that the length of the completion was dependent on the dissertation project and the advisor. Nevertheless, she still did not change to another lab after knowing that the dissertation project completion time was not related to the starting time, because she had already spent so long on the project. In other words, she had two reasons for staying with the same advisor, working on the assigned project. The first reason was to save time. Later on, she had another reason: to avoid sunk costs—she wanted to continue simply because of the investment she had already made in the project.

The image theory (Beach, 1993, 1998; Beach & Mitchell, 1987; Mitchell & Beach, 1990) described three aspects a decision-maker may attend to: the value image (the decision maker's values, morals, and principles), the trajectory image (the decision maker's goals), and the strategic image (the decision maker's plans to attain his or her

goals). According to the theory, decision makers go through two phases: compare options and reject any that violates them; and check the trade-offs or use other decision strategies to make the final choice. As revealed in the interview, Emily believed working with the same advisor on the topic given from the beginning provided her with the shortest path to attain her goal—in this case, completion of the degree. Although there were trade-offs, such as she did not like the project much (the value image), she chose to stay. The rational decision was to find the optimal outcome that could best suit these three images, but she placed too much emphasis on the strategic image and made excessive compromises on the other two images. The eventual outcome was she did not want to "have anything to do" with her dissertation after graduation.

As shown earlier, the image theory emphasizes the clarity of goals, but not all students have clear goals at the time of dissertation topic selection. All eleven participants had certain goals. The baseline was graduation. Next to that, all social sciences students wanted to work in academia after graduation; the story for natural sciences students was a little more complicated: Cory wanted most to work for an oil company after graduation but thought working in academia was also a good option; Zhang wanted to work as an engineer after graduation; Lidan wanted to work in the public sector, because she was frustrated with the grant writing expected of professors in her field. Emily wanted to

work in the public sector or academia if she could find assistants to carry out her proposal ideas.

In short, they all had goals, but in their dissertation topic selection, only Cory explicitly mentioned that he chose his topic because it offered him the opportunity to apply for jobs in industry as well as in academia. Goal theory (James, 1983; Kruglanski, 1996; Miller, Galanter, & Pribram, 1960) argued that human behaviors were directed by goals. For doctoral students, however, these examples demonstrated that their goals were in flux. They modified their goals as their knowledge of the field grew (Bargar & Mayo-Chamberlain, 1983). Although the students reported they had goals after graduation, they may not have truly known those goals or they may have not made a full commitment to those goals. Or it may be the case that their professional goals was linked to the completion of the Ph.D. project; hence, when they were selecting a dissertation topic, not all of them made the connection to link the dissertation topic project to their completion and to the type of jobs they could find with the topic.

Because of such uncertainty, students may not always make a rational decision in topic selection. Decision makers have not always made rational choices (Alonso & Fernández-Berrocal, 2003; Tversky & Kahneman, 1986). Students' knowledge of the selection criteria did not mean they chose accordingly; rather, students sometimes made irrational decisions in dissertation topic selections for various reasons.

Conclusion 5: The Effect of Linguistic and Cultural Differences

Flower and Hayes (1980) pointed out that the cognitive process of making discoveries involved the writer's examination of that particular rhetorical situation: the task, the purpose, and the audience. As an instance of invention, the selection of a dissertation topic is a problem in rhetoric. Students need sufficient knowledge of the discourse community and their own purposes to identify a research space for the dissertation projects. The current study involved five native English speakers (Aaron, Karen, Gabby, Lidan and Rebecca), two early bilingual speakers (Jennifer and Mike), and four international students (Cory, Emily, Ting, and Zhang). The study did not reveal any categorical differences between native and non-native speakers. Rather, their selection experiences could only be understood case by case.

Non-native English users are never a homogeneous entity. This assumption has been criticized in many studies (e.g., Hedgcock & Lefkowitz, 1994; Matsuda, 1997; Valdés, 2005). In the current study, the four international students differed greatly in their cultural and linguistic backgrounds. In terms of culture, Cory came from Lebanon, a Middle Eastern culture; Emily from Poland, a European culture; and Zhang and Ting from mainland China, an Eastern culture. In terms of linguistic proficiency, Cory's oral English was indistinguishable from that of a native speaker. The other three nonnative speakers had been in the States for two to four years at the time of the research.

If the linguistic and cultural differences were significant factors in dissertation topic selection, then nonnative speaker students would be affected by their different linguistic proficiency and cultural backgrounds; however, that was not the case. Compared to these factors, the students' disciplines, their degree of disciplinary enculturation, and their goals after graduation appeared to have exerted a much stronger impact on their dissertation topic selection. For example, Zhang and Emily were both non-native speakers in natural sciences; both had been in the United States since they began their Ph.D. studies; both had their topic given to them by their advisors. Yet Zhang enjoyed his topic, but Emily did not. In another case, Gabby was a native English speaker and Mike was an English-Hungarian early bilingual. However, both of their dissertation topic ideas stemmed from their previous working experience.

Surface errors can set non-native speakers from native speakers even at very advanced proficiency levels (Allison, Cooley, Lewkowicz, & Nunan, 1998; Angelova & Riazantseva, 1999; Casanave & Hubbard, 1992; Currie, 1993; Paltridge, 1997) and many programs have been proposed to help non-native graduate and doctoral students to become better writers in English and participate more actively in the discipline conversation. This study did not detect an effect of linguistic and cultural differences in the selection of the dissertation topic. Similar findings were found in Belcher and Hirvela's (2005) and Casanave's (2010) research on non-native students' choices of

research methods. The non-native students in both studies preferred the qualitative method, but in Flowerdew (1999), nonnative researcher participants believed the quantitative method was more straightforward and simpler. One possible explanation is Flowerdew's (1999) participants were in Hong Kong, a less privileged location in the North America led publication industry (Canagarajah, 1996), and they were researchers conducting independent investigation on their own, whereas the other three studies focused on doctoral students whose advisor were either in the Unites States or has a strong connection to the North America academia. If the current participants were in their home countries conducing independent research and writing it up in English, perhaps their languages and cultures would play some roles in their selection of research topics.

Limitations

The present research adopts a mixed-method approach and the rationale of this design has been discussed in Chapter 3. The limitations will be introduced here as they may affect the interpretation and implication of the present research:

1. This study focused only on second- and third-year students' experiences in selecting a dissertation topic, with the rationale being that their memory of the event is most fresh or they are in the midst of selecting a topic. However, in retrospect, this study would have been more informative if it had included students in the more advanced stages, such as the fourth- and fifth-year students, and the students who postponed

graduation. Their retrospection of the topic selection experience may not be as fresh, but their more matured perspectives are likely to add valuable insights to the understanding of the selection process.

2. This study did not distinguish between second- and third-year students in the survey, based on the consideration that dividing students' years in their fields by the number of years they have been in the Ph.D. program is problematic, as some students may start the Ph.D. program without a Master's degree, or their previous Master program may be in an irrelevant field. Upon reflection, I think that I used an avoidance strategy to resolve the problem that simple division may cause, which is a passive strategy. I could have taken a more proactive strategy by asking students to provide information about their Master's program in the survey and analyzing students' number of years in their fields by combining the information that they provided regarding the Master's education sector and the Ph.D. education sector. If I used this strategy, I could also include students in more advanced years, resulting in more participants in the survey. Furthermore, the survey data would be cross-sectional rather than regarding second- and third-year students as one group.

3. I did not expect accounts given by students and advisors of the dissertation topic selection to be so short. In fact, one of the findings of this research is that it is not the moment of topic decision that matters; it is the long time spent searching and thinking

prior to the decision moment that is most informative. As people tend to forget moments that they regard as unimportant or unexciting (Dunbar, 1997), it would have been more helpful for the researcher to follow the participants longitudinally. The current dissertation constructed interviewees' stories on the basis of their own construction of their experiences stories. If I could have tracked a participant over a certain period of time (e.g., a year), the interview data would be much richer, as I would have taken notes about areas that the participant may forget or overlook during this process. Longitudinal design is suggested for future research.

Implications

Theoretically, this study confirms the proposal (LeFevre, 1987) that creative ideas are the result of collective social forces. In the case of selecting dissertation topics, social forces include the student or the inventor, the disciplinary language, and the academic community to which the student belongs. Another characteristic pertaining to the invention of dissertation topics is the time students spent searching for topics. It takes time for the students to know enough of their disciplinary fields and find a good research space that fits their personal, professional and academic needs. By the time of course completion, students may not necessarily have sufficient knowledge of their fields or their career goals to make an informed decision. A rational decision is believed to maximize the decision makers' different interests, including the decision maker's values,

morals and principles, goals, and plans to attain their goals (Beach, 1993, 1998; Beach & Mitchell, 1987; Mitchell & Beach, 1990). Common problems in students' experience include the uncertainty of their goals, and the tendency to compromise their values, morals or principles for the sake of an assumed easier path investigating certain topics. In other words, the invention of dissertation topics has three characteristics: a) It takes a long period for students to identify an appropriate dissertation topic; b) Students' ideas of dissertation topics are inspired by their previous personal, academic, or professional experience, their communication with advisors, and their academic knowledge in the discipline; c) the topic selection criteria that inventors (i.e., doctoral students) rationally think should be included may not be used in the actual invention process. Advisor support and students' overemphasis on an easier time investigating certain topics were two possible reasons that may lead to negative experiences in selecting dissertation topics.

In terms of practical implications, dissertation writing workshops are suggested as it provides struggling students with opportunities to discuss their feelings and share their academic or personal problems with each other. A support group is a useful tool for the development of doctoral students (Gardner, 2008b). In dissertation stage, students in social sciences and humanities are usually in isolation. Offering them a safe place to discuss their own topic selection experience would help dispel their assumption that those who found a topic encountered the topic by accident. They will know dissertation topic

stage is challenging for most of them. This awareness will help them become more patient and less dismissive of themselves when they could not find a topic as quickly as they expected. Additionally, advisors are an important source of influence in students' doctoral experience as well as topic selection process. All four advisors in the current study have good knowledge of their students' academic progress, but not all of them are aware of students' honest attitudes towards some projects or students' career goals. Such knowledge, however, is crucial for efficient advising and mentoring. Finally, students' dissertation topic selection experience is significantly influenced by their disciplinary backgrounds, which means the structure of a program, the courses offered, the milestone projects required and the funding policies are all critical factors to students' success in deciding on a good dissertation topic. Administrators and educators are thus advised to regularly check with the students for their needs and concerns. They are also advised to make the program policies and requirements explicit to all students from the very beginning so that students can make more informed decisions in choosing potential Ph.D. programs, which paves the way for their later choice of advisors, courses, and dissertation topics.

REFERENCES

Allison, D. Cooley, L., Lewkowicz, J., Nunan, D. (1998). Dissertation writing in action: the development of a dissertation writing support program for ESL graduate research students. *English for Specific Purposes, 17*(2), 199-217.

Alonso, D. & Fernández-Berrocal, P. (2003). Irrational decisions: attending to numbers rather than ratios. *Personality and Individual Differences, 35*(7), 1537-1547.

Angelova, M., & Riazantseva, A. (1999). "If you don't tell me, how can I know?": A case study of four international students learning to write the U.S. way. *Written Communication, 16*(4), 491-525.

Bargar, R. R. & Mayo-Chamberlain, J. (1983). Advisor and advisee issues in doctoral education. *The Journal of Higher Education, 54*(4), 407-432.

Barr, M. A. (1984). *The selection of dissertation topic: elements influencing student choice* (doctoral dissertation). The Ohio State University, Columbus, OH.

Beach, L. R. (1993). Broadening the definition of decision making: The role of prechoice screening of options. *Psychological Science, 4*(4), 215-220.

Beach, L. R. (Ed.). (1998). *Image theory: Theoretical and empirical foundations*. Mahwah, NJ: Rutledge.

Beach, L. R., & Mitchell, T. R. (1987). Image theory: Principles, goals, and plans in decision making. *Acta Psychologica, 66*(3), 201-220.

Belcher, T. (1981). Towards a definition of disciplinary cultures. *Studies in Higher Education, 6*, 109-122.

Belcher, D. (1994). The apprenticeship approach to advanced literacy: Graduate students and their mentors. *English for Specific Purposes, 13*(1), 23-34.

Belcher, D. & Hirvela, A. (2005). Writing the qualitative dissertation: What motivates and sustains a fuzzy genre? *Journal of English for Academic Purposes, 4*(3), 187-205.

Berelson, B. (1960). *Graduate education in the United States*. New York, NY: McGraw-Hill.

Berkenkotter, C. & Huckin, T. N. (1995). *Genre knowledge in disciplinary communication: Cognition/culture/power*. Hillsdale, NJ: Erlbaum.

Bitchner, J. & Basturkmen, H. (2010). The focus of supervisor written feedback to thesis/dissertation students. *International Journal of English Studies, 10*(2), 79-97.

Blanton, J. S. (1983). Midwifing the dissertation. *Teaching of Psychology, 10*(2), 74-77.

Bolker, J. (1998). Writing your dissertation in fifteen minutes a day: A guide to starting, *revising, and finishing your doctoral thesis*. New York, NY: Holt Paperbacks.

Bowarshi, A. (2003). *Genre and the invention of the writer: Reconsidering the place of invention in composition*. Logan, UT: Utah State Press.

Bowen, H. R., & Rudenstine, N. L. (1992). *In pursuit of the PhD*. Princeton, NJ: Princeton University Press.

Canagarajah, A. S. (1996). "Nondiscursive" requirements in academic publishing, material resources of periphery scholars, and the politics of knowledge production. *Written Communication, 13*(4), 435-472.

Casanave, C. P. (2010). Taking risks?: A case study of three doctoral students writing qualitative dissertations at an American university in Japan. *Journal of Second Language Writing, 19*(1), 1-16.

Casanave, C. P., & Hubbard, P. (1992). The writing assignments and writing problems of doctoral students: Faculty perceptions, pedagogical issues, and needed research. *English for Specific Purposes, 11*(1), 33-49.

Clark, I. L. (2006). *Writing the successful thesis and dissertation: Entering the conversation*. Crawfordsville, IL: Prentice Hall

Clark, M., Riley, M., Wood, R. C., & Wilkie, E. (1998). *Researching and Writing Dissertations in Hospitality and Tourism*. London: International Thomson Business Press.

Council of Graduate Schools. (2004). *Ph.D. completion and attrition: Policy, numbers, leadership and next steps.* Washington, D. C.: Council of Graduate Schools.

Council of Graduate Schools. (2005). *The doctor of philosophy degree: A policy statement*. Washington, D. C.: Council of Graduate Schools.

Currie, P. (1993). Entering a disciplinary community: Conceptual activities required to write for one introductory university course. *Journal of Second Language Writing, 2*(2), 101-117.

De Saussure, F. (2011). *Course in general linguistics*. Columbia University Press.

Dörnyei, Z. (2003). *Questionnaires in second language research: Construction, administration and processing*. Mahwah, NJ: Erlbaum.

Dong, Y. R. (1996). Learning how to use citations for knowledge transformation: Nonnative doctoral students' dissertation writing in science. *Research in the Teaching of English, 30*(4), 428-457.

Dong, Y. R. (1998). Non-native graduate students' thesis/dissertation writing in Science: Self-reports by students and their advisors from two U.S. institutions. *English for Specific Purposes, 17*(4), 369-390.

Dunbar, K. (1997). *How scientists think: Online creativity and conceptual change in science*. Retrieved from http://www.utsc.utoronto.ca.ezproxy1.lib.asu.edu/~dunbarlab/pubpdfs/DunbarWardbook.pdf

Flower, L. & Hayes, J. (1980). The cognition of discovery: Defining a rhetorical problem. *College Composition and Communication, 31*(1), 21-32.

Flowerdew, J. (1999). Problems in writing for scholarly publication in English: The case of Hong Kong. *Journal of Second Language Writing, 8*(3), 243-264.

Galotti, K. M. (2005). *Making decisions that matter: How people face important life choices*. Mahwah, NJ: Psychology Press.

Gardner, S. K. (2008a). The process of becoming an independent researcher in doctoral education. *The Journal of Higher Education, 79*(3), 326-350.

Gardner, S. K. (2008b). Fitting the mold of graduate school: A qualitative study of socialization in doctoral education. *Innovative Higher Education, 33*, 125-138.

Glaser, B. G. & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New York: Aldine.

Harris, J. (1989). The idea of community in the study of writing. *College Composition and Communication, 40*(1), 11-22.

Hedgcock, J. & Lefkowitz, N. (1994). Feedback on feedback: Assessing learner receptivity to teacher response in L2 compositing. *Journal of Second Language Writing, 3*(2), 141-163.

Herrington, A. (1985). Writing in academic settings: A study of the context for writing in two college chemical engineering courses. *Research in the Teaching of English, 19*(4), 331-361.

Heiss, A. M. (1970). *Challenges to graduate schools*. San Francisco, CA: Jossey-Bass.

Hoffer, T. B., & Welch, Jr. (2006). *Time to Degree of U.S. Research Doctorate Recipients* (NSF Report 06-312). Retrieved from http://www.nsf.gov/statistics/infbrief/nsf06312/

Hoijer, H. (1954). The Sapir-Whorf Hypothesis. In H. Hoijer (Ed.), *Language in culture: Proceedings of a conference on the interrelations of language and other aspects of culture* (pp. 92-105). Chicago: University of Chicago Press.

Isaac, P. D., Koenigsknecht, R. A., Malaney, & Karras, J. E. (1989). Factors related to doctoral dissertation topic selection. *Research in Higher Education, 30*(4), 357-373.

Isaac, P. D., Quinlan, S. V., & Walker, M. M. (1992). Faculty perceptions of the doctoral dissertation. *The Journal of Higher Education, 63*(3), 241-268.

James, W. (1983). *The principles of psychology*. Cambridge, MA: Harvard University Press. (Original work published in 1890)

Jenkins, S., Jordan, M. K., & Weiland, P. O. (1993). The role of writing in graduate engineering education: A survey of faculty beliefs and practices. *English for Specific Purposes, 12*(1), 51-67.

Kozma, K. (1997). *Perception of factors which affect the selection of a dissertation topic in a distance learning doctoral program* (Unpublished dissertation). Walden University, Minnesota.

Kuhn, T. S. (1970). *The structure of scientific revolutions* (2nd ed.) Chicago: University of Chicago Press.

Kruglanski, A. W. (1996). Goals as knowledge structures. In P. M. Gollwitzer & J. E. Bargh (Eds.), *The psychology of action* (pp. 599-618). New York, NY: Guilford.

Lauer, J. M. (1972). Heuristics and composition. *College Composition and Communication, 21*(5), 396-404.

Lauer, J. M. (2004). *Invention in rhetoric and composition*. West Lafayette, IN: Parlor Press.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York, NY: Cambridge university press.

LeFevre, K. B. (1987). *Invention as a social act*. Carbondale, IL: SIU Press.

Long, T. J., Convey, J. J. & Chwalek, A. R. (1985). *Completing dissertations in the behavioral sciences and education*. San Francisco: Jossey-Bass.

Lunenburg, F. C. & Irby, B. J. (2007). *Writing a successful thesis or dissertation: Tips and strategies for students in the social and behavioral sciences*. Thousand Oaks, CA: Corwin.

Matsuda, P. K. (1997). Contrastive rhetoric in context: A dynamic model of L2 writing. *Journal of Second Language Writing, 6*(1), 45-60.

Mauch, J. & Park, N. (2003). *Guide to the successful thesis and dissertation: A handbook for students and faculty* (5th ed.). New York, NY: CRC Press.

Miller, G. A., Galanter, E., & Pribram, K. H. (1960). *Plans and the structure of behavior.* New York, NY: Henry Holt & Company.

Menard, S. (1991). *Longitudinal research*. Newbury Park, CA: Sage.

Mitchell, T. R., & Beach, L. R. (1990). "… Do I love thee? Let me count…" toward an understanding of intuitive and automatic decision making. *Organizational Behavior and Human Decision Processes, 47*(1), 1-20.

Norton, B. (2000). *Identity and language learning: Gender, ethnicity and educational change*. Singapore, Pearson Education Limited.

Paltridge, B. (1997). Thesis and dissertation writing: Preparing ESL students for research. *English for Specific Purposes, 16*(1), 61-70.

Prior, P. (1991). Contextualizing writing and response in graduate seminar, *Written Communication, 8*(3), 267-310.

Richards, L. (2009). *Handling qualitative data: A practical guide* (2nd ed.). Thousand Oaks, CA: Sage.

Roberts, C. M. (2010). *The dissertation journey: A practical and comprehensive guide to planning, writing, and defending your dissertation* (2nd ed.). Thousand Oaks, CA: Corwin.

Rudd, R. (1985). *A new look at postgraduate failure*. Guildford, England: Society for Research into Higher Education & NFER-Nelson.

Rudestam, K. E. & Newton, R. R. (2007). *Surviving your dissertation: A comprehensive guide to content and process* (3rd ed.). Thousand Oaks, CA: Sage.

Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in education and the social sciences* (3rd ed.). New York, NY: Teachers College Press.

Sessions, R. R., Jr. (1971). *Factors related to dissertation topic selection: Student personnel and guidance* (Unpublished dissertation). East Texas State University, Commerce, TX.

Shaw, P. (1991). Science research students' composing process, *English for Specific Purposes, 10*(3), 189-206.

Single, P. B. (2009). *Demystifying dissertation writing: A streamlined process from choice of topic to final text*. Sterling, VA: Stylus Publishing.

Strauss, A. & Corbin, J. (1998). *Basics of qualitative research*. Thousand Oaks, CA: Sage.

Swales, J. M. (1990). *Genre analysis: English in academic and research settings*. Cambridge, UK: CUP.

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

Tversky, A. & Kahneman, D. (1986). Rational choice and the framing of decisions. *The Journal of Business, 59*(4), 251-278.

Valdés, G. (2005). Bilingualism, heritage language learners, and SLA research: Opportunities lost or seized? *The Modern Language Journal*, *89*(3), 410-426.

Vygotsky, L.S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Weiss, R. S. (1994). *Learning from strangers: The art and method for qualitative interview studies*. New York, NY: The Free Press.

Young, R. (1976). Invention: A topographical survey. In G. Tate (Ed.), *Teaching composition: 10 bibliographical essays* (pp. 1-43). Fort Worth, TX: Texas Christian University Press.

Young, R., Becker, A., & Pike, K. (1970). *Rhetoric: Discovery and change*. New York, NY: Harcourt, Brace & World.

APPENDIX I

IRB PROTOCOL

ASU ARIZONA STATE UNIVERSITY
Knowledge Enterprise Development

Office of Research Integrity and Assurance

To:	Paul Matsuda LL
From:	Mark Roosa, Chair Soc Beh IRB
Date:	01/05/2012
Committee Action:	**Exemption Granted**
IRB Action Date:	01/05/2012
IRB Protocol #:	1201007247
Study Title:	A mixed-method approach to students' dissertation topic selection

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(2).

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.

PO Box 876111 Tempe, AZ 85287-6111 ♠ 660 S. Mill Avenue, Suite 315 ♠ P 480 965 6788 ♠ F 480 965 7772
http://researchintegrity.asu.edu

APPENDIX II

COVER LETTER TO SURVEY PARTICIPANTS

Cover Letter for to Survey Participants

Dear doctoral students,

My name is Jing Xia, and I am a doctoral student under the direction of Professor Paul Matsuda in the Department of English at Arizona State University.

I am conducting a dissertation project to explore the dissertation topic selection experience among doctoral students in the College of Liberal Arts and Sciences. My study consists of two phases: Phase I contains a series of questions to be answered; Phase II includes in-depth interviews with invited participants. I am inviting your participation in Phase I, which is to fill in a short on-line survey that may take you approximately 20 minutes. At the end of the survey, you will be asked for whether you are interested in participating in Phase II and whether the researcher can contact your advisor for a separate interview.

Your participation in this study is voluntary. You can skip questions if you wish. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. You must be 18 or older to participate.

You will not receive any compensation for this survey. Your responses will be used to generate information that can be useful for better supporting doctoral students in dissertation topic selection in particular and doctoral education at large. There is no foreseeable risk or discomfort to your participation.

In Phase I, your response to the survey is completely anonymous. In Phase II, your interview responses will be kept confidential and will not be shared with anyone but the researcher. The results of this study may be used in reports, presentations, or publications. Your responses will be reported in aggregated forms for the survey results, and all identification information will be removed or altered in the interview data.

If you have any questions concerning the current research project, please contact me at jing.xia.1@asu.edu. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

Proceeding to the next survey page will be considered your consent to participate.

Sincerely,

Jing Xia

APPENDIX III

SURVEY

Part I: Factual Information

1. Have you read any dissertation guides (the how-to books on writing a dissertation)?

   __ Yes __ No

2. Have you decided on your dissertation topic?

   __ Yes__ No

3. Have you defended your dissertation proposal?

   __ Yes __ No

4. Have you decided on your dissertation chair?

   __ Yes __ No

5. Have you decided on all the committee members for your dissertation?

   __ Yes __ No

6. Have you taken the comprehensive/qualifying exam?

   __ Yes __ No

7. Are the following statements true in your situation?

	Yes	No
"I decided on my dissertation topic before taking the comprehensive exam."		
"I selected my dissertation chair before selecting the dissertation topic."		
"I decided on all my committee members before selecting the dissertation topic."		
"My dissertation topic is closely related to my coursework."		

“I have been wanting to study the topic I have selected for dissertation since my entrance to the Ph.D.”		

8. How long do you think it took you from "trying to find a dissertation topic" to "deciding on your current dissertation topic"?

   a. Less than a month

   b. One to three months

   c. Three to six months

   d. Over six months

9. Which of the following statements best describes your situation?

   a. I selected the topic on my own

   b. It is a mutual decision between me and my advisor

   c. It is a mutual decision between me and my committee

   d. My advisor suggested/assigned the topic to me

   e. It is a sub-topic of the larger project in our lab

   f. Other. Please specify _____

Part II: Dissertation topic selection consideration

The following items provide some possible considerations in dissertation topic selection. Please rate the degree of importance in your case a 1-10 scale.

10. The topic should be related to my personal background.

    (Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

11. The topic should be suitable for my personality.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

12. The topic should be of high academic interest to me.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

13. The topic should be of high personal interest to me.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

14. The topic should go well with the trend in my field of study.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

15. The topic should be tackled with the instruments that are available to me.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

16. The topic should be tackled with the data that I can easily collect.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

17. The topic should have a strong potential for publication.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

18. The topic should improve my opportunities for employment after graduation.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

19. The topic should be one that could be completed in a reasonable length of time.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

20. The topic should be one that could be completed with the expenditure of a reasonable amount of money.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

21. The topic should be part of already funded research that needed to be done.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

22. The topic should have potential for institutional, governmental, or other funding.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

23. The topic should be offered or suggested to me by a faculty member.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

24. The topic should be in an area where my advisor has expertise.

(Not important at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly important)

Part III: Evaluation of your doctoral experience

25. What do you think of the usefulness of dissertation advice books? (1 represents "not useful at all"; 10 represents "highly useful")

(Not useful at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly useful)

Please provide some comments on these books:

_____

26. How much would you rate your interest in working in research-high institutions after graduation?

(Not interested at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly interested)

Please provide some description of your ideal type of work:

_____

27. How would you rate your satisfaction towards your current doctoral program?

(Not satisfied at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly satisfied)

Please provide some comments on your program:

_____

28. How would you rate your satisfaction towards your current advisor?

(Not satisfied at all) 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 - 10 (Highly satisfied)

Please provide some comments on your advisor:

_____

29. If a new doctoral student in your program asked for your advice on finding a dissertation topic, what would you tell that person:

_____

Part IV: Background Information

30. Gender: Male __ Female __

31. Year of birth: 19 _ _

32. Are you an international student? ___ Yes ___ No

33. Native language (check all that apply):

34. _____ English Other (Please specify) _____

35. Ethnicity (check all that apply):

36. ___American Indian/Alaskan Native; ___Black ___ Hispanic;

37. ___ Asian; ____Hawaiian/Pacific Islander; ____ White; ___Other (Please specify) _____

38. Which Ph.D. program are you in? ____ (scroll-down menu)

39. Please provide the name(s) of your field of study: _____

40. When did you start your current Ph.D. program? 20 _ _

41. Which year do you expect to graduate? 20 _ _

Thank you very much for your responses! Phase II of this study contains follow-up interviews with invited participants. You will be rewarded a $10 gift card for each interview session. If you are interested in participating in Phase II of this project, please click the following link to provide your contact information: Click Here

1. The present researcher plans to have two interviews with interested respondents on the topic selection experience. Each of the interviews will last approximately an hour and you will be paid $10 reward per interview. If you are interested, please provide your email address here:

   _____

2. Would it be okay if we contact your advisor for an interview session? If yes, please provide his/her email address here:

_____

APPENDIX IV

PROGRAMS AND IDENTIFIED DISCIPLINES

Programs and Identified Disciplines

Program	Field of Study	Discipline
Philosophy (History and Philosophy of Science)	History and Philosophy of Science	H
English Literature		H
East Asian Languages and Civilization	classical Chinese literature	H
Rhetoric/Composition/Linguistics	syntax	H
East Asian Languages and Civilization	Chinese Language and Civilization	H
English Literature	Renaissance	H
History		H
Spanish	Latin American studies, narrative, essay, beat generation, literary theory	H
English Literature	Medieval Literature	H
English Literature		H
Chemistry	Physical Chemistry	NS
Physics		NS
Psychology		NS
Chemistry		NS
Speech and Hearing Science	Audiology	NS
Geological Sciences	Planetary Science	NS
Geography	Geography	NS
Speech and Hearing Science	bilingual psycholinguistics	NS
Geography		NS
Psychology	Social Psychology	NS
Biochemistry	Biochemistry, Molecular Biology, Biological Design	NS
Physics		NS
Speech and Hearing Science	Bilingual Reading Acquisition	NS
Geological Sciences	Geomorphology	NS
Microbiology	Molecular Biology and Genomics	NS
Chemistry	Environmental Analytical	NS
Physics	particle physics, experimental	NS
Chemistry	Organic Chemistry & Photophysics	NS
Biochemistry	Femtosecond Nanocrystallography	NS

Geography	remote sensing and land degradation	NS
Geological Sciences	Volcanology	NS
Geography	Global change and land-use/cover change	NS
Psychology	Cognition, Action, & Perception	NS
Geography	cultural and historical geography	NS
Geography	Geographic Information Science	NS
Physics	Biophysics	NS
Physics	biophysics	NS
Chemistry	Environmental chemistry	NS
Chemistry	Physical Chemistry/Nanomaterials	NS
Chemistry	environmental chemistry	NS
Biology	Behavioral Ecology	NS
Astrophysics		NS
Geography	Geography	NS
Environmental Social Science		NS
Biology	Biology	NS
Astrophysics	star formation	NS
Geological Sciences	Active tectonics, quantitative structural geology, tectonic geomorphology, K-12 geoscience education	NS
Chemistry		NS
Geological Sciences		NS
Geological Sciences	geodynamics	NS
Psychology		NS
Geological Sciences		NS
Communication	CMC, Relational Comm, Nonverbal	SS
Biology (Biology and Society)		SS
Communication	Organizational Communication	SS
Justice Studies	Emphasis in Media, Technology and Culture	SS
Political Science	Comparative Politics	SS
Applied Linguistics	TESOL/Second Language Writing	SS
Biology (Biology and Society)	Bioethics, Policy and Law	SS
Applied Linguistics	World Englishes, sociolinguistics	SS
Rhetoric/Composition/Linguistics	Second Language Writing	SS

Religious Studies	Christianity in a Global Context / Religion in the Americas	SS
Anthropology	bioarchaeology	SS
Applied Linguistics		SS
Rhetoric/Composition/Linguistics	rhetcomp	SS
Rhetoric/Composition/Linguistics		SS
Biology (Biology and Society)	Philosophy of Evolutionary Biology	SS
Applied Linguistics		SS
Applied Linguistics	second language acquisition, bilingual education, syntax	SS
Applied Linguistics	English for Specific Purposes	SS
Sociology	social movements, educational equity	SS
Family and Human Development	peer relations	SS
Applied Linguistics	Language policy	SS
Mathematics Education (Mathematics and Statistics Dept - Grades 9-20)	Mathematical Knowledge for Teaching, Multiplicative Conceptual Field	SS
Biology (Biology and Society)	History of Science; Science & Technology Studies	SS
Applied Linguistics	Sociolinguistics	SS
Political Science	American Politics	SS
Justice Studies	American Indian student activism; social justice in predominantly white institutions	SS
Rhetoric/Composition/Linguistics	Social Media and Digital Literacies.	SS
Justice Studies		SS

(1. NS = natural sciences; SS = social sciences; H = Humanities

2. Abbreviations in original)

APPENDIX V

INTERVIEWEE BACKGROUND SURVEY

Interviewee Background Survey

1. Email address: _____

2. Gender: Female ___ Male ____

3. Year of Birth: _____

4. Native language (check all that apply)

English _____

Other than English (Please specify) _____

5. Ethnicity (check all that apply)

American Indian/Alaskan Native _____

Asian _____

Black _____

Hawaiian/Pacific Islander _____

Hispanic _____

White ____

Other (Please specify)_____

6. What is your Ph.D. program called? _____

7. What is your field of study? _____

8. Which year and semester did you enter your current Ph.D. program? _____

9. Which year and semester do you plan to graduate? _____

APPENDIX VI

INTERVIEW GUIDES

Interview Guides

I. Interview guide for the first interview with the students on topic selection

1. What are your research areas?
2. Could you tell me briefly about your doctoral program and how you came to it?
3. How did you come to work with your current advisor? Tell me some of your experience working with him/her.
4. Tell me about your dissertation project. What's it about?
5. Tell me about your process of working on the dissertation—from the very beginning until now.
6. What are some of the key moments in the process of working on your dissertation project?
   - How did the topic for your dissertation come into being?
   - How did the topic of your dissertation evolve overtime?
7. What are some of the things you wished you knew when you began your program?
8. If a new doctoral student in your program asked for your advice on finding a dissertation topic, what would you tell that person?

II. Interview guide for the interview with advisors on the advisee's topic selection

1. Could you tell me which research areas you work on?
2. Could you tell me how you usually work with your doctoral students?
3. Could you give me some examples on how your doctoral students come to the dissertation topics?
4. Could you tell me something about your experience of working with (the student's name)?
5. How did you come to work with this student?
6. Could you tell me something about the student's project?
7. Could you recall some of your key advising experience with this student on the dissertation project, from the very beginning till now?

III. Confirming the professors' accounts of topic selection through email.

1. Provide a written account of the interview with the professor
2. Send it to the professor to ask for clarification and/or confirmation.

IV. Interview guide for the 2nd interview with the students

1. Last time, you said .... Could you elaborate on this point (places where further elaboration is needed)?
2. Here is our account of the process you experienced during the selection of a dissertation topic. Is it accurate? Please point out the places that need revision or refinement.

3. Do you have anything to add on at this moment regarding your topic selection experience?