

**MAKING SENSE OF DOCTORAL STUDENT ATTRITION
IN LIBRARY & INFORMATION SCIENCE**

**by
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A DISSERTATION

**Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the School of Library and Information Studies
in the Graduate School of
the University of Alabama**

TUSCALOOSA, ALABAMA

1999

Submitted by Elizabeth Lane Lawley in partial fulfillment of the requirements for the degree of Doctor of Philosophy specializing in Library and Information Studies.

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DEDICATION

Dedicated with love and gratitude to my family:

My grandmother, Faye Rosenblum Faber;

my parents, Linda Reinfeld and John Lane;

my husband, Gerald;

and my sons, Lane and Alex.

Without their unconditional love and support,
this dissertation could never have been completed.

ACKNOWLEDGMENTS

There are many people who have contributed to my completion of this research. My advisor, Gordy Coleman, has provided encouragement, support, and an invaluable shepherding of my progress throughout this doctoral process. Marion Paris has helped me to keep my ideas clear and my language precise, serving as both critic and cheerleader through repeated drafts of this work. Ron Rogers, Joan Atkinson, and Ed Mullins provided insight into the content and process of my dissertation research. All of them have helped me to believe that my contribution was worthwhile, and that this work mattered.

Jewell Sandoval, the “power behind the throne” at the University of Alabama School of Library & Information Studies, kept my link to the school and my studies alive by helping me meet deadlines, untangle red tape, and remember that somebody back there really cared if I made it. Her encouragement and assistance—not to mention her prayer rug—were invaluable.

The University of Alabama made my graduate study possible, by giving me the generous financial support that I needed for my first three years in the program, and the flexibility to pursue an interdisciplinary

approach to my studies. Without that flexibility, I might never have had the opportunity to take a class with Leah Lievrouw, who introduced me to the richness and complexities of communication and information research. It was in Leah's doctoral seminar that I first read Brenda Dervin's work. And it was also in her seminar that I learned just how much an extraordinary teacher can do to help her students learn from each other and themselves.

Brenda Dervin's generosity in responding to my queries and sharing her experience and knowledge—both one-on-one and through the project mailing list—has made it possible for me to use the sense-making theoretical constructs and methodology more effectively and with growing confidence.

My friends have done more to keep my spirits up and my confidence strong than they will ever know. Fellow students Helen Claire Covey and Deborah Lewis in Tuscaloosa; MB Williams, Beth Walker, Susie McGee, Christine Eubanks, Carole Chesser, Mariet Verkuijlen, and the other women of the September '96 Moms' Mailing List; my long-time friends and confidantes Barb Powers and Jan Tona in Buffalo, Bob Malkin in Memphis, and MaryAnn Sarosi in Ann Arbor; the members of SPK; and my colleague Steve Jacobs in Rochester—all provided me with the sympathetic ears, welcoming shoulders, and good-humored support that I needed to keep going through the seven long years of this journey.

My dissertation coach, Rob Scuka, helped me to “face my cannons” and make it past my final hurdles. Without his advice and support throughout the last year of my writing, I would not have found my way to finishing this work.

My family made it possible for me to finally finish this dissertation—my mother provided office space in her basement and on her porch, my husband shouldered more than his share of the child care and household duties so that I could balance a full-time teaching job with the research and writing, and my children kept me firmly grounded with their unconditional love. They will all be happy to have me back in the real world with them again now that this process is complete.

These acknowledgements need to include *The Phantom Tollbooth*, by Norton Juster (1961), from which the quotations at the beginning of each chapter were drawn. One of my favorite children’s books, I read it often to my son Lane during the last few months of writing this dissertation. To him, Milo’s adventures with words and numbers brought entertainment; to me, they often brought inspiration.

And finally, I am grateful to the men and women who agreed to share with me their thoughts and feelings about their decisions to leave their doctoral programs. Their generosity and willingness to share their thoughts and experiences provided the materials from which this work was built.

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CHAPTER ONE: INTRODUCTION

“In this box are all the words I know,” he said. “Most of them you will never need, some you will use constantly, but with them you may ask all the questions which have never been answered and answer all the questions which have never been asked. All of the great books of the past and all the ones yet to come are made with these words. With them there is no obstacle you cannot overcome. All you must learn to do is use them well and in the right places.”

—Juster (1961)

The problem of doctoral student attrition is increasingly a matter of concern in graduate schools across the United States. While this phenomenon is not unique to the field of library and information studies (LIS)—in fact, the rate of doctoral student attrition in academia as a whole has been estimated by many experts to be as high as 50% (Bowen & Rudenstine, 1992; Hawley, 1993; Sternberg, 1981; Tinto, 1993)—it has only occasionally surfaced as an area of visible concern in library education and the library profession (Futas & Zipkowitz, 1991; Reeling, 1992). The researchers who have pursued this topic in the context of LIS have been spurred by concerns that the available pool of faculty members to teach in LIS programs is shrinking, and that LIS doctoral programs are not generating a sufficient pool of candidates to fill a growing need, particularly in areas related to communication and information

technologies.¹ The problem of doctoral attrition in graduate study as a whole has not gone unexamined in current educational research—a number of highly regarded books (Bowen & Rudenstine, 1992; Tinto, 1993) and dissertations (Golde, 1996; Kerlin, 1997; Lovitts, 1996) have taken up this topic in recent years. But it is not clear that research into the motives and actions of students in other disciplines can be generalized to the field of LIS.

Conventional wisdom holds that many technologically skilled doctoral students leaving their programs are motivated by financial concerns, and it may be true that the increase in high-paying technology-sector jobs for individuals with skills in the evaluation, organization and facilitation of access to information is a factor in increased LIS doctoral attrition rates. However, no systematic study has been undertaken to verify this belief, or to determine whether there are aspects of the LIS doctoral experience—aside from limited financial rewards—that could be playing a meaningful role in the decision of students to leave their programs.

To explore more fully the factors underlying LIS doctoral student attrition, the present study uses Brenda Dervin's sense-making

¹ This concern has been reinforced in informal communications with representatives of a variety of LIS programs, many of whom claim to have had difficulty recruiting faculty able to teach technology courses in recent years. Little data is available on numbers of candidates applying for open positions versus open positions, so it is difficult to independently verify this claim.

methodology (Dervin, 1992a) to identify communication and information-seeking problems (which Dervin's model describes as "gaps") in students' experiences that may lead to their departure from graduate study. The results of the sense-making study are then used as a basis for suggesting ongoing accountability research that could be implemented in LIS doctoral programs in order to improve recruitment and retention of doctoral students. This study also serves as a starting point for additional research into doctoral student retention in other disciplines.

Statement of the Problem

Doctoral student recruitment and retention is an important issue for all universities and their associated graduate programs. In recent years, however, this issue has become increasingly problematic for doctoral programs in LIS fields. LIS programs have increasingly come under fire within the academy, as schools and departments have closed or merged with other units within their institutions. Any attempt to improve the recruitment and retention of doctoral students—and by doing so to strengthen the position of the LIS program in the research university context—requires a far better understanding of the current doctoral student experience than is currently available.

The majority of research on LIS education has focused on the primary degree in the field, the American Library Association (ALA) accredited master's degree. Little attention has been paid to LIS doctoral

programs, and even less to the students who are enrolled in those programs. As a result, faculty and administrators have little idea as to why LIS doctoral students are leaving (or even entering) their programs, and there exists almost no research to support any proposed changes to recruitment methods, curricula, or degree requirements, or to support continued or increased allocation of financial aid for students in these programs.

Primary research question

The present study takes its direction from the primary research question: "What factors are most influential in the decision of LIS doctoral students to leave their programs before completion of their degrees?" In the course of this investigation, students who had recently (since 1990) left their doctoral program were surveyed using an interviewing methodology designed to elicit underlying factors involved in decision-making situations.

Subsidiary research questions

This study uses Dervin's sense-making approach for both its methodology and its analysis of data. The sense-making methodology, as described in Chapter 2, focuses on a user-oriented research process rather than a systems-oriented research process, placing the focus of the research on the user's perceptions of the phenomenon being studied, and avoiding any framing of interview questions from the systems standpoint. (For

example, library user studies based on sense-making might ask the library user “tell me about the last time you used the library,” rather than asking “which of our library services do you use?”)

The sense-making approach has not been used in doctoral attrition research to date, or in any explorations of the LIS educational process, which leads to a subsidiary research question: How can a change from a “systems-oriented” research process (focusing on aspects of the doctoral program itself) to a “user-oriented” research process (focusing on the student’s perceptions and understanding of their doctoral experience) change our understanding of the factors underlying LIS doctoral attrition?

The present study uses electronic mail for the qualitative, sense-making interviews of the subjects. The choice of electronic mail for the interviewing process is discussed in more detail in Chapter 3. However, that choice leads to a second subsidiary research question: Does the use of electronic mail for interviewing research subjects yield data that is rich enough—and accurate enough—for use in a qualitative study?

Theoretical Framework for the Study

In any research project, it is essential that the problem drive the selection of the methodology, rather than the reverse. Even the most cursory review of research methods literature, however, forces the researcher into the debate over the relative merits of positivist versus interpretive models for studying human behavior. This polarization is

evident throughout the social sciences, and is perhaps best evidenced in the field of LIS by the polemical rhetoric of Davis and Guba (Davis, 1990; Davis, 1991; Guba, 1991) in their exchange of editorial letters regarding the use of qualitative (or, as Guba prefers, “naturalistic”) methods in LIS research.

Superficially, the methodological debate appears to present a clear choice between two opposing views. On one side are the champions of quantitative methods, logical positivists who believe that there is an absolute truth “out there,” and that proper experimental design and statistical analysis will enable the researcher to elicit that truth in order to generalize from a sample to the larger population. On the other side are the defenders of qualitative or naturalistic measures, interpretive researchers who believe that human behavior cannot be reduced to discrete variables, and that the behavior of a sample, no matter how carefully chosen, cannot necessarily be generalized to a complete population. At first glance, this argument often appears to revolve around beliefs about the usefulness of “hard” data generated by the quantitative measures, versus that of “soft” data gleaned from qualitative work. However, a closer look reveals a much deeper epistemological difference underlying this debate.

Recent critical reviews of research in the areas of information needs and uses, and in communication studies (another field with a keen interest

in the loss of its students to industry) have identified a paradigmatic shift in the views of what constitute appropriate research methods for studying human behavior (Cole, 1994; Dervin & Nilan, 1986; Hale, 1991; Schement & Ruben, 1993). In all of the social and behavioral sciences (as well as the so-called “hard” sciences), the idea that an absolute truth exists has been questioned by theorists and researchers, and this view is being replaced with a constructivist view that sees reality as a personal and subjective construction.

A growing number of researchers have taken a more conciliatory approach, acknowledging the value of both quantitative and qualitative approaches. Dervin and Clark (1987, p. 36), for example, find that statistical data is most valuable for the purposes of identifying the magnitude of a problem or phenomenon, whereas qualitative data is more useful in identifying the underlying causes. Qualitative research allows the identification of variables that can then be further evaluated through descriptive and analytical statistical research.

To achieve reliable and valid results in LIS research, it is necessary to operationalize the variables used in statistical measurement. Traditional LIS research, for example, has been built on the “information as thing” model articulated by Buckland (1991a; 1991b), a conceptualization that allowed researchers to count information interactions (number of transactions, number of records retrieved, etc.) as

a measure of “successful” information use. This system-oriented perspective, which begins by assuming that the information, like truth, exists “out there” and must somehow be moved into the users, becomes increasingly difficult to support when one observes how little it has done to further the understanding of how and why people use libraries, online databases, schools, or other systems designed to “inform” (Dervin, 1991a; Dervin, 1992b).

Over twenty years ago, Dervin (1976; 1977) began proposing that research based on understanding “communication” rather than “information” would provide a better theoretical base for research into library problems. Her sense-making methodology proposes a conceptualization of information as a user construct, rather than as a discrete external “thing.” Dervin is not the only researcher who has called for such an epistemological shift. Her review article with Nilan in the 1986 *Annual Review of Information Science and Technology* (Dervin & Nilan, 1986), and Cole’s (1994) review of the development of information as a subjective construct, note a growing dissatisfaction with the results of traditional information needs and uses research, and the lack of a clear and consistent theoretical base for that research. Cole, in particular, reviews the work of a growing number of researchers shifting toward a more constructivist approach. Overall, information needs and uses research has been moving away from methods that attempt to generalize

from sample to a larger population, and toward methods that focus on the often unique nature of users' information needs. It is not always the case that the user's unique individual needs can be generalized from a sample to a broader population. In fact, information needs and uses can be so individual as to make the identification of a "representative" sample impossible.

In her discussion of the sense-making methodology, Dervin (1992a) tells us that this move need not be to a radical constructivist (or phenomenological) position, or a claim that generalizable results are not possible. Rather, she argues that from research on local constructs, the researcher can derive theoretical principles that can then be tested in other settings. Her approach uses "situatedness"—the placing of the information-seeking behavior in the context of the events around it—as the generalizable aspect, rather than looking for across-time-and-space generalizations. Miles and Huberman (1994) also discuss the use of qualitative research to generalize not from the sample to the population, but rather from the sample to theory.

Whereas other researchers have developed methodologies for understanding the information seeking process—most notably Kuhlthau's (1991) Information Search Process model—Dervin's approach differs from most because it does not presuppose a knowledge of the user's information needs. Instead, the sense-making methodology seeks to elicit information

on both the needs and the uses of systems, institutions, and resources designed to inform. As a result, sense-making provides a novel, and seemingly appropriate theoretical starting point for this examination of the doctoral student experience, in which the researcher seeks to understand both the nature of doctoral students' information needs and the extent to which students are able to satisfy those needs ("make sense" of their situation) through their doctoral program experiences.

Interpretive and qualitative theories, when operationalized in research projects, are often criticized for failure to account for reliability and validity. Answering these charges requires an examination of the concepts of reliability and validity themselves. Dervin (1994) and Miles and Huberman (1994) note that these concepts as traditionally conceptualized rely upon the same epistemological presuppositions discussed above in the context of positivism. Reviews of traditional research methods texts (Katzer, Cook, & Crouch, 1991; Miller, 1991; Powell, 1985) provide these traditional definitions, while texts with discussions of qualitative methodologies (Babbie, 1989; Glazier & Powell, 1992; Miles & Huberman, 1994) provide some alternative views of the concepts.

In the traditional view, "reliability" is seen as the repeatability of results. This can take two forms: inter-instrumental reliability, or the question of whether the same methodology used in the same setting will

generate the same results consistently; and inter-observer reliability, or the question of whether two researchers using the same methodology will obtain the same results. Fidel (1992) notes that these conditions of reliability cannot be met using a case study methodology, the success of which depends upon the ability of the observer to elicit information that another researcher might miss, information that is often unique to a specific time and place. Babbie (1989) notes that the inherent subjectivity of field research causes problems in reliability, but says that gathering data from multiple sites may present a way to overcome this weakness.

Miles and Huberman (1994) propose a reconceptualization of the concept of “reliability” of qualitative research, offering a variety of questions for the researcher to answer in developing a study: Is there meaningful parallelism between sites? Is there clear connection to theory? Has the researcher clearly indicated his or her role within the study, acknowledged biases, and ensured that the participants are fully aware of the purpose of the study and nature of the inquiry? Were data collected across a valid sample? And Dervin (1994) asserts that rather than striving for identical replication, researchers should attempt to achieve consistency in the time-space frame of situationality; that is, will individuals with similar information needs exhibit similar behavior in comparable situations?

There are two primary issues, then, that need to be addressed in order to ensure reliability in the results of this study. The first relates to sampling, as selection of representative subjects and the retrieval of results that can be generalized across those subjects is critical. Miles and Huberman note that in qualitative research, sampling tends to be purposive rather than random. Acknowledging not only that one researcher cannot study the entire universe, but also that the researcher cannot study any single segment that represents the entire population leads to a process where subjects or sites are selected based on their representativeness within a given situation.

Glaser and Strauss, in their influential work *The Discovery of Grounded Theory* (1967), advocate the use of “theoretical sampling” to generate information about elements and their connections within a theoretical framework. While this study does not employ a strict application of the grounded theory approach (given that grounded theory demands that no variables be predefined), the selection of representative “slices” of the population to be studied will be consistent with the proposed methodology in this project. Miles and Huberman also recommend that sampling be linked to theory; accordingly, the students selected will need to represent varying populations, but comparable “situatedness.” If sense-making theory holds true in this case, there should be reliably consistent

results across the various programs based on similarities in the situational aspects of each subject's experience.

Related to the concept of reliability, as well as to that of validity, is the issue of the Hawthorne Effect. That is, will the presence of an observer result in skewed results, results that may be consistent—and therefore on their face reliable—but in fact inaccurate and therefore invalid? (Miles and Huberman discuss the idea of the “broken thermometer”; it will produce results that are completely consistent, and thus reliable, but are dependent on that one instrument, and are in no way valid or generalizable to other situations.) It is difficult to compensate for this factor completely; however, the use of a qualitative, interview-based methodology can help the researcher to determine the extent to which the study itself has influenced the results in a way that a more rigid and quantitative study would not allow.

To address the topic of validity in qualitative research, the concept must be broken down into two separate constructs: internal validity (often called “criterion validity”), which relates to the ability of the research to accurately identify and measure a given variable, and to show causal relationships between independent and dependent variable; and external validity (also called “predictive validity”) which addresses the extent to which the results in the study can be generalized to other settings.

When evaluating the internal validity of qualitative research, the question must go beyond the traditional “are the criteria clearly identified and causal relationships found.” Paris (1988a; 1988b) notes that one problem with the application of criterion validity in social sciences is that precise operationalization and measurement are more difficult, if even possible, when examining human behavior. Miles and Huberman suggest that the question of internal validity should be reformulated as “Are these findings credible? Do they make sense? Do they have truth value?” They identify specific understandings that can come from qualitative research: *descriptive* (what happened in certain situations), *interpretive* (what the situation meant to participants), *theoretical* (what are the key concepts and their relationships), and *evaluative* (observer and participant judgments of worth or value). Babbie (1989), in fact, believes that field research is in many ways more ‘valid,’ especially in terms of internal validity, because of the richness of information received and the ability of the researcher to tap into a depth of meaning in the constructs.

The lack of existing research on the topic of LIS doctoral attrition makes it particularly important that this study take an exploratory stance rather than a presumptive one. Accordingly, the data obtained from the sense-making interviews was used to identify key concepts and variables affecting student perception and understanding of LIS doctoral programs, rather than to measure them. One strength of the interpretive

framework of sense-making is that it allows an exploration of the experiences of the research subjects not just from an outside researcher's perspective, but also with the active solicitation of the subjects' views. Sense-making, in fact, specifically acknowledges the respondents as co-theorists in the research process (Dervin, personal communication, 1995).

In addressing the topic of external validity, the epistemological presuppositions of qualitative research must be revisited: specifically, the idea that the researcher can generalize from results not to a complete population, but rather to a theoretical structure, one that can then be retested in other settings. Paris (1988b) notes that the case study and other qualitative methods establish external validity not based on a *statistical* generalization from sample to population, but rather on *analytical* generalization, allowing theory-building from observations, and retesting of that theory to verify and refine it. In particular, theoretical sampling encourages the likelihood of valid generalization by looking at a range of settings, carefully chosen to reflect a variety of aspects of the population being studied.

The attempt of this study, then, is not to generate results that can be applied *in toto* to all doctoral programs in all fields. Rather, it is to generate a theoretical framework that can identify the key aspects in student perceptions of and problems with LIS doctoral programs. By generating such a framework, identifying key variables in perception and experience

of these programs, and looking for relationships between these variables, it becomes possible to retest and refine that theory in a variety of settings.

The true tests of the reliability and validity of the results generated from an exploratory qualitative study come in projects based upon the initial results. An excellent example of this is the work done by Kuhlthau in comparable educational settings (Kuhlthau, 1991). While she began with substantially qualitative work (a case study of a single group of high school students), she then used the results of the study to generate instruments for further testing of the variables identified in other settings, as well as for further testing of the students in the initial group over a longer period of time. The expanded number of sites and the addition of a longitudinal view provided sufficient proof of the reliability and validity of her results to allow the development of a model that can be used in a wide variety of settings. Ideally, this research will eventually be extended in comparable ways. For the short term, however, the primary goal of this research has been the identification of the key variables and concepts in the area of LIS doctoral student attrition, with an eye towards the suggestion of changes in recruitment, program requirements, curricular design, or other aspects of the doctoral student experience to reduce that attrition rate.

Delimitations and Limitations of the Study

As discussed in the previous section, it is not the purpose of the present study to describe a representative sample of LIS doctoral students; in fact, it is unlikely that such a sample could be generated, given the extraordinarily wide range of LIS programs and student characteristics. Rather, the intent is to begin the development of a theory of student perceptions and responses to current LIS doctoral programs. That theoretical framework can then be applied in other settings and refined in order to allow generalizations from the theory to the wider populations.

The study focuses on a very specific group of students—doctoral students who have recently (since 1990) dropped out of their programs in LIS. It must be emphasized that the results of this study cannot and should not be used to generalize about LIS doctoral programs, or about the larger population of LIS doctoral students. The results can, however, be used to begin to identify those factors that appear consistently—across students and schools—to influence students' views of their doctoral programs, and their decisions to leave those programs. The primary goal is the development of a theory of LIS doctoral attrition that can then be tested in subsequent studies.

Future research will also seek to expand the scope of this research to a wider variety of students and settings, and will be used to support or revise theoretical hypotheses about doctoral student expectations and

experiences that result from this study. Additional research might explore whether the factors that are most influential for LIS doctoral students are also of importance in the experiences of doctoral students in other academic fields.

Organization of the Study

This study is organized into six chapters. This, the first chapter, provides an overview of the research problem and the theoretical framework proposed for approaching the problem. The second chapter surveys the literature in two primary areas— first, the literature related to doctoral attrition across the academy, and second, the literature pertaining specifically to doctoral study in library science. The third chapter describes the methodological framework used in the study, including an overview of Dervin’s sense-making approach, the development of the interview instrument, the use of electronic mail in the interviewing process, and the selection of subjects. The fourth chapter examines the process of “making sense” of the initial data, providing a look at the development of the process used for thematic and content analysis, as well as assessing the effectiveness of various data analysis techniques. The fifth chapter presents the results of the thematic and content analysis, offering an in-depth look at the data and the initial theory-building resulting from the data analysis. The sixth and final chapter puts forth the

conclusions derived from these results, and makes suggestions for future research in this area.

CHAPTER TWO: REVIEW OF RELEVANT LITERATURE AND THEORY

“I think I can find my own way,” said Milo, not at all sure that he could. But, since he didn’t understand the little man at all, he decided he might as well move on—at least until he met someone whose sentences didn’t always sound as if they would make as much sense backwards as forwards.

—Juster (1961)

Of the 56 ALA-accredited LIS programs in North America listed as members of the Association for Library and Information Science Education, only 27—fewer than half—currently offer a doctoral degree (Daniel & Saye, 1998). And while a body of research examining master’s programs in LIS exists, little has been written about doctoral programs and doctoral study—perhaps because the master’s degree is considered the terminal professional degree in the field of LIS.

Only one extensive review of the literature on LIS doctoral study has been published (Abrera, 1987; Abrera, 1988); that study covered the literature from 1926 to 1980, and found that the majority of work on the topic consisted of descriptive studies. Many of those studies analyzed the subject matter of doctoral dissertations in the field, or provided the results of surveys of doctoral graduates. In her review, Abrera divides the literature on the topic into two segments, separated by the appearance of

what she calls a “landmark study”: Danton’s “Doctoral Studies in Librarianship.” (1959)

Abrera defines the pre-Danton period as the years from 1926 (the year the first doctoral students were admitted to Graduate Library School of the University of Chicago) to 1958. During this time, only eight studies concerning the LIS doctorate were published, none of which discussed students, graduates, or dissertations. Instead, all focused on the value and role of the doctoral degree in the field of LIS.

The Danton study itself was a quantitative study of multiple aspects of doctoral study—dissertations, program objectives, major fields of study, factors inhibiting attainment of program objectives, student withdrawal rate and time to completion, positions held by graduates, and the contribution of doctoral study as a whole to the profession. This range of topics is extensive, but the methodology used is unclear (Danton does not describe his instrument or surveying methods in the study), which makes it difficult to assess the accuracy of his results. Of particular interest in his study, however, is his discussion of the doctoral student attrition problem, a topic largely ignored in the earlier literature on LIS doctoral work. Danton’s examination of number of students admitted vs. those awarded the degree during the period from 1948 to 1958 showed ratios ranging from 8:1 at Chicago to 11.9:1 at Illinois. While some of those admitted during the period in question would probably go on to complete their

doctorates at a later date, Danton notes that those figures “point to an unmistakable [*sic*] high attrition rate,” and asserts that “unless the causal factors—e.g., the lack of substantial fellowship aid—should change we shall have to continue to expect a small proportion of doctoral graduates in relation to the total numbers who begin study at this level.” (p. 442) Unfortunately, Danton provides no convincing evidence to support his assertion of a causal connection between fellowship availability and completion rates. Danton also claims that in other fields, attrition rates have been lowered by a reduction in the number of required courses, and the setting of fixed time limits for completion of the degree. Again, however, he provides no evidence to support this claim.

In the post-Danton literature from 1959-1980, Abrera found that more quantitative studies began to appear. Other researchers followed Danton in their analyses of dissertations and graduates as well as assessment of programs. The overall number of publications on the topic of LIS doctoral study increased dramatically during this period, as well, with 61 items identified and included in Abrera’s review. The studies done during this time included descriptions of programs, opinion papers on the role of the doctoral program, and analyses of dissertations. Notably, however, Abrera was unable to identify non-quantitative studies of doctoral *students* (as opposed to graduates), or any investigations into the issues of retention and attrition.

Of particular note in the post-Danton period is Marco's (1967) investigation of the doctoral programs themselves. His research, commissioned by the Research Committee of the American Library Association's Education Division, surveyed the deans and directors of the eight doctoral programs in existence at that time. Marco's study focused on the requirements for admission to doctoral study, curriculum and requirements for the degree, and the image or status of the program, particularly in the eyes of other academics on the campuses where the programs were located. While some of the respondents did comment on the needs of the doctoral students in their programs, no reference of any kind is made to the time-to-completion or attrition rates in these programs.

In the years since Abrera's literature review was published, only a few studies related to LIS doctoral study have appeared. Perhaps the most negative is Houser's "examination of the dissertation process in the context of scientific scholarship." (1982, p. 95) Like Houser's earlier work on the topic of librarianship as an academic discipline, this article criticizes a "lack of theory in the discipline which dissertations should be testing or which would guide the research conducted in the dissertations," and embarks on a review of literature related to the Ph.D. in library science (p. 97). In that review, he expresses concern that the failure of LIS education—and, consequently, LIS dissertations—to meet his criteria of a

scientific discipline or profession means that “dissertation production in library science [is] intellectual fraud” (p. 105).

Houser’s criticism of library science as “unscientific” and even fraudulent in its pretensions has its earlier roots in his book *The Search for a Scientific Profession* (Houser & Schrader, 1978). In it, the authors evince a belief that as the study of information is increasingly undertaken by disciplines such as psychology and anthropology, “library science will come to have less and less claim as a social science and as a scientific profession.” In that event, they imply, doctoral study and its resulting research would have little or no value.

This remarkably bleak view of the value of LIS education and research was strongly criticized by one of the most highly respected scholars in the field, Jesse Shera (1979). His scathing response to Houser and Schrader’s work begins with the following:

This book has so many faults—errors, misinterpretations, and misunderstandings—that the reviewer is in a quandary as to where best to begin, or, indeed, whether he should begin at all. Nevertheless, a review is justified on the ground that it could be a potentially dangerous book. Its heavy burden of scholarly impedimenta might lead the unwary to believe there is important substance between its covers. In fact, rather than being scholarly, the book is sophomoric and polemical. (p. 310)

Shera goes on to say that Houser and Schrader’s critique is based on a very small and selective sample of the literature, and ignores many examples that contradict their claims. Certainly this is true of Houser’s review of the

literature on LIS doctoral study, since he asserts that “the literature about doctoral programs [between 1930 and 1980] is virtually nonexistent” (1982, p. 103), while Abrera (1987; 1988) was able to identify 61 published items in the period from 1960-1980 alone. It seems premature, therefore, to rely on Houser’s assessment of the literature as an indicator of the state of LIS doctoral study. Houser’s conclusions have also been criticized by other LIS scholars, including Buckland (1996), Budd (1995), and Harris (1986).

Another relatively recent study that has been widely cited by scholars in the field is Bobinski’s analysis of the development, status, and future of LIS doctoral education (Bobinski, 1986). At that writing, the number of institutions offering a doctoral degree in LIS had grown quickly from eight to twenty four, changing the landscape of LIS doctoral education, and precipitating the need for an updated version of the original research done by Danton and Marco. Bobinski based much of his research on data drawn from the annual statistical reports compiled by the Association for Library and Information Science Education (ALISE).

Using the ALISE statistical data, which includes items such as number of degrees granted annually, as well as HEA fellowships awarded annually, Bobinski was able to identify a correlation between financial support and completed doctorates. While this certainly suggests that financial support is a factor in LIS doctoral attrition, without in-depth

qualitative research to verify the connection it is difficult to support the conclusion that there is a clear causal relationship between the two.

(Another potential interpretation of the data, for example, could be that students who show a higher level of commitment to their doctoral programs are more likely to receive aid from their institutions.)

Bobinski's data was supplemented by responses to a letter sent to deans and directors of LIS programs, providing more detail on the admissions requirements and courses of study for their doctoral students, on perceptions of quality of their program (their own views, as well as their perceptions of the way the program was viewed by others on campus), and on recent or projected changes in the program.

In his analysis, Bobinski states that "doctoral study in library and information science seems to be in a state of transition," with no new programs having been established in the preceding ten years, three about to open, and three about to close. In contrast, there has been an extraordinary amount of change in the field of library education during the years since Bobinski's study was published. Several schools have closed their doors, while many others have changed their names, taken on new areas of study, and even merged with communication, management, education, or computer science programs. Powell (1995) identified twenty-seven doctoral programs in the US and Canada as of 1995, and all but one of those programs exist today. Yet some of those programs retain only

minimal ties to their original identities in the field of LIS. The growing emphasis on the study of information and technology in the LIS curriculum has changed the curriculum of LIS significantly since the early 1980s. It is possible that these changes have also had an effect on the students enrolled in—or leaving—doctoral programs in the field.

After the publication of Bobinski's study, Whitbeck (1991) undertook another descriptive survey of LIS programs offering doctoral degrees. At the time of his research—1987—there were twenty programs offering research-based doctoral degrees, nineteen of which he included in his survey. In many ways, this survey was similar to its predecessors, including questions on admissions criteria and curriculum components. Unlike Bobinski, Whitbeck did include questions about the time taken from admission to completion of program; however, because he received data only on graduates and current students (the assumption being that “current students” were those actually enrolled in classes during the time of the survey), it is difficult to tell how the results would have differed had all students admitted during a given time period been surveyed. He does not discuss or offer conclusions about attrition, and he provides little data that would be useful in understanding that aspect of the programs.

One problem with using the above-cited studies of doctoral programs to shed light on the problem of doctoral student attrition is that they have focused almost exclusively on characteristics of the programs—as reported

by the faculty and administrators of the programs—and not on the students themselves. The sole exception to this approach to analyzing doctoral programs is Reeling (1992). She examined characteristics of doctorate recipients in LIS, spurred by a concern that “there may be developing a shortage of individuals with the doctorate who will be available to teach in library and information science programs in this country.” (pp. 311-312) Reeling set out to determine trends in the number of doctoral degrees granted in LIS, to develop a profile of LIS doctorate recipients, to identify the most popular fields of study for doctoral students in LIS, and to determine what factors doctoral program administrators believed would be most influential in recruitment and retention in the immediate future.

Although her interest included retention of students, most of Reeling’s data came from surveys of individuals who had completed their doctorate, and from administrators who may have been reluctant to discuss their programs’ failures to retain doctoral students. The study identifies some characteristics of students who successfully navigated the doctoral path, but reveals little about the students who failed to complete their programs.

In short, while there have been some notable studies focusing on the characteristics of LIS doctoral programs, doctoral dissertations, and Ph.D. recipients, almost no attention has been paid to the unquestionably large

number of students who enter LIS doctoral programs with the intention of completing their studies, but do not reach that goal.

The broader topics of doctoral student attrition and retention have been studied to a greater extent in the larger context of graduate education, and in the specific academic fields of higher education and communication as well. Perhaps because of the difficulty in identifying and surveying students who have left their programs entirely, however, much of this literature focuses on time to completion of the degree rather than on attrition. While Abedi and Benkin (1987) complain that “the literature on graduate students, and specifically on the time it takes doctoral students to complete degrees, can charitably be described as sparse” (p. 4), these studies do provide a starting point for an exploration of the doctoral student experience in LIS. In addition, growing concern about the problems of retention and attrition in graduate study has led to significant growth in the amount of research into the topic since 1987.

A few studies on the topic of doctoral student attrition have attempted to isolate specific factors that may be related to the attrition phenomenon. Benkin (1984), in her study of doctoral students across all academic and professional fields at UCLA, found that the two factors that seemed to differentiate ABDs from doctoral recipients were their reports of financial assistance and their reported relationships with their faculty members. However, this study failed to differentiate among fields of study.

This distinction among characteristics of students in varying fields of study is one that other researchers have determined is significant in understanding attrition.

Another researcher who surveyed students in multiple disciplines at a single institution is Bodian (1987), who found that “career instrumentality” (defined as the extent to which doctoral students perceive degree completion as instrumental to the attainment of future career goals) was negatively correlated with attrition intent, but that no relationship appeared to exist between the students’ feelings about their financial situation and their career instrumentality or attrition intent—findings that appear to contradict Benkin’s. This contradiction, however, may well be a result of the blurring of distinctions between students in different academic fields—students in some fields may have strong correlation between financial support and attrition intent, while students in other fields may have far less.

Bowen and Rudenstine’s *In Pursuit of the Ph.D.* (1992) is one of the most important studies of doctoral student characteristics, and includes discussion of both time to completion and student attrition. Their in-depth analysis of graduate education in the US led them to assert that

only about *half* of all entering students in many Ph.D. programs eventually obtain doctorates (frequently after pursuing degrees for anywhere from six to twelve years). In sharp contrast it is common for completion rates in leading professional schools of business, law, and medicine to exceed 90 percent. And it is not just the plight of the ABDs. . . that has caused completion rates in Ph.D. programs to be

low; attrition has been high at all stages of graduate study. Moreover, attrition appears to have increased over the last three decades. (p. 105)

Bowen and Rudenstine identify three discrete stages of doctoral study: (a) before the second year of study (“pre-2nd Year”), (b) from the start of the second year until the completion of all requirements other than the dissertation (“pre-ABD”), and (c) after completion of all requirements but the dissertation (“ABD”). The authors note that most research done to date on doctoral student attrition has focused exclusively on the ABD group. Yet in their analysis of doctoral students entering Ph.D. programs at six universities (Berkeley, Chicago, Cornell, Princeton, Stanford, and the University of North Carolina), they found that “more than twice as many students left these Ph.D. programs prior to achieving ABD status as left after achieving ABD status.” (p. 111)

Notably, Bowen and Rudenstine found that completion rates for Ph.D. students varied more based on field of study than on any other variables they studied. An important aspect of their findings is that differences among completion rates in fields of study existed even when the outcomes were controlled for factors commonly seen as important factors in attrition, such as the availability of financial aid and the gender of the student. In contrast, Hanson (1992) found significant evidence of difference in attrition rates between men and women in doctoral study; these differences may, however, be attributable to differences in time

periods studied, as well as to institutions included in the research. The differences also may be a function of uneven distribution by gender within given fields—for example, library science and education typically have more women enrolled in their programs than do the “hard” sciences. As a result, a study looking at gender independently of field of study might lead a researcher to conclude that women have a higher attrition rate from doctoral study, when those findings might instead represent higher likelihood of attrition in fields that also have high concentrations of female students. These factors may be interrelated, but showing causality is problematic.

Although Bowen and Rudenstine provide some valuable statistics regarding doctoral student time-to-completion and attrition, they acknowledge the difficulty in translating these statistics into an understanding of student motivations, noting that “it is impossible to invoke this simple dichotomy [between ‘voluntary’ and ‘involuntary’ attrition].” Their response to this difficulty in ascertaining motives, however, is not to suggest more detailed qualitative research, but rather to extract what they can from the “objective” statistical data. They assert that “it is much more sensible, in our view, to focus on *when* [italics added] attrition occurs, which can be determined objectively.” What they do not address is the question of whether these objective studies will add any value without a determination of the independent variables affecting

attrition rates—a determination that can most effectively be done through qualitative analysis of doctoral students and their experiences.

Some of the most insightful comments on student attrition come from Vincent Tinto, whose well-respected work on collegiate student attrition, *Leaving College* (1987; 1993) outlines the development of his theory of student persistence. Tinto opens his work with a discussion of the problems in our current understanding of student departure from the academy.

While most of Tinto's research has focused on undergraduate students, his book includes an appendix entitled "Toward a theory of doctoral persistence" in which he explores the possible extension of his undergraduate attrition model to the graduate student experience. Tinto also discusses the relationship of attrition rates to fields of study, noting that in doctoral study the primary reference environment is the program or department rather than the institution:

One can reasonably expect the process of doctoral persistence in some fields to be much more similar across institutions than it might be among some fields of study within a particular university.

Like Bowen and Rudenstine, Tinto identifies three stages of doctoral persistence: (a) the first year of study, which he calls the transitional stage; (b) the period leading to candidacy; and (c) the completion of the dissertation. In both the first and second stages, the student's experience appears to be dependent on interactions with a wide range of faculty

members; in the third stage, however, the focus shifts to the relationship with the advisor and a selected number of faculty making up the committee. (p. 237)

Tinto claims that “while finances matter, it is not clear that they matter in the same way at different stages of the doctoral completion process.” While this does not contradict the findings of other researchers that finances play a key role in attrition, it certainly opens the door for more in-depth analysis of the range of reasons LIS doctoral students have for abandoning their course of study.

Much of the research done on doctoral attrition during the past twenty years has focused on the available statistics relating to doctoral student characteristics and time to completion, with conclusions based on relationships between those sets of variables. In some cases, the data is supplemented by surveys sent to doctoral students, to graduates, and occasionally to those who have left their programs. However, the survey methodologies used, by nature of their structured format, have often forced the respondents to choose among factors predefined by the researchers, rather than allowing them to provide their own narrative explanations for their decisions.

In contrast, only a few researchers have taken a qualitative approach to studying the doctoral student attrition issue. Jacks, Chubin, Porter, and Connolly (1983), begin their study stating that “we know

little about [ABDs], their perceptions of the graduate training experience, and above all, their assessment of their 'failure' and subsequent career choices." Rather than approaching the issue from a statistical standpoint, they construct a "narrative portrait" (p. 74), interviewing twenty-five ABDs from eighteen departments at fifteen universities, and questioning them about their reasons for leaving their doctoral programs, the impact of that decision on their lives and careers, and their assessments of the value of the doctorate.

Like Bowen and Rudenstine (1992), Jacks et al. found that the greatest similarities among their respondents corresponded to fields of study, rather than to age, gender, or other factors. However, they also identified financial pressure, a poor working relationship with the advisor and/or committee, substantive problems with the dissertation research, and personal or emotional problems as reasons cited by respondents for their departure from the programs.

Golde (1994) also used a qualitative approach to understanding doctoral student attrition, noting that the existing research on doctoral student attrition includes a number of critical gaps. In particular, she found that within the literature "the voices of students have been noticeably absent," expressing a concern that without the actual words of the students made available, it is impossible to "see the student's experience in its entirety." She also asserts that "because many of the

investigations have been purely quantitative in nature, they have conceptualize [*sic*] attrition as a solitary event, rather than the consequence of a dynamic process.” (1994, p.2)

Golde’s research was focused on what she termed “departmental contextual factors,” and how they affected attrition. For her dissertation, she conducted an in-depth qualitative inquiry in which she interviewed students from four departments—Biology, Geology, History and English—at a single university. She found that:

(1) The structure and timing of the various requirements for the doctorate affect student experiences, and consequently the attrition decision. (2) Many students become disillusioned in graduate school, because they had unrealistic expectations about graduate school and the academic life. (3) Relationships with advisors are critical, particularly in the sciences. Problematic relationships often stem from mismatched expectations and working styles. (4) The attrition decision was usually regarded as positive by those interviewed. Attrited students expressed few regrets about the decision to matriculate or to attrite. (5) Some women science students experienced graduate school differently than their male peers. (6) There are no consistent patterns in the reasons for attrition by attrition stage (early vs. late). (1996, p. iv)

While Golde’s research provides an excellent starting point for better understanding of the doctoral student attrition problem, her research is focused on the interaction between the student and the department, and the identification of departmental factors, actions, and characteristics that influenced the students’ choices. The possibility that the decisions were influenced in whole or in part by factors external to the academic setting is not fully explored. The voices of the students are an important aspect, but

it is possible that these voices are not providing all of the information necessary to truly understand the complex decision-making process involved in leaving a doctoral program.

One of the most detailed and in-depth studies of doctoral attrition was done by Nerad and Cerny, whose research into doctoral time-to-degree and attrition at Berkeley led to the publication of their results, first in the *cgs Communicator*, the newsletter of the Council of Graduate Schools (1991), and later in a volume of *New Directions for Institutional Research* (1993). Their research involved a series of steps, beginning with statistical analyses, and continuing into qualitative interviews of students. While their research was focused primarily on Berkeley students, they also performed comparative analysis which indicated that the Berkeley data was similar to that at other institutions. Based on their results, they developed a model for understanding the conditions related to short time-to-completion and low attrition rates. This model is shown in Table 1, which is taken directly from their work (1991, p. 5). This model provides an excellent starting point for evaluating specific academic disciplines and departments in order to assess their risk factors for high attrition and long time-to-completion rates.

Table 1: Factors Determining Time to Degree and Attrition

Institutional and Field-Specific Factors			
1	Research Mode	Apprenticeship mode Team work Laboratory	Individualistic learning Solitariness Library
2	Structure of Program	No M.A./M.S. required Qualifying examination includes dissertation prospectus Annual evaluation	M.A./M.S. required Qualifying exam does not include dissertation prospectus Sporadic evaluations
3	Dissertation Defined	Test of future ability to do research	Major contribution to knowledge (book)
4	Advising	Faculty mentoring Departmental advising	Absence of faculty mentoring and dept advising
5	Departmental Climate	Sense of community Students treated as junior colleagues	Factions among faculty Students treated as adolescents
6	Research Money	Many sources	Few sources
7	Type of Financial Support	Research assistantship Fellowships	Teaching assistantship Loans Own earnings
8	Campus Facilities Housing Child-care Space (Office, Mtg) Transportation Library	Affordable Available Available Efficient, Affordable Long hours, year round	Expensive Overcrowded Overcrowded Slow, expensive Short summer hours
9	Job Market (Post-doc, Academic, Industry)	Many openings Well paid	Few openings Medium or low salaries
		= SHORT TIME LOW ATTRITION	= LONG TIME HIGH ATTRITION

It is clear from this review of the literature that the topic of doctoral student attrition in LIS is an important one to the profession, but that little research has been done to shed light on this phenomenon. While there is useful research having to do with both LIS doctoral study and with doctoral attrition generally, there is little or nothing addressing the

intersection of these two areas of study. There is, therefore, a clear need to extend the research on doctoral persistence and attrition to the field of LIS, and to do so in a way that enables the identification of variables influential in the attrition process.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

“Words and numbers are of equal value, for, in the cloak of knowledge, one is warp and the other woof. It is no more important to count the sands than it is to name the stars. Therefore, let both kingdoms live in peace.”

—Juster (1961)

The design of this study takes much of its direction from the body of work that uses Dervin’s sense-making methodology for the collection and analysis of data related to individual behavior. As described in Chapter One, the sense-making methodology is a primarily qualitative research method developed by Dervin (1992a; 1987) that attempts to identify the ways in which individuals make sense of their surroundings and actions in a given situation. The sense-making methodology can incorporate a range of data gathering methods, including participant interviews, questionnaires, and document analysis.

The key concept underlying the sense-making approach is the shift from what Dervin terms a “systems perspective”—where researchers study a given system through the eyes of the professionals associated with that system—to what she calls a “people perspective”—seeing the system through the eyes of the user. This shift in focus has been very useful in

changing the nature of needs assessment and accountability research in the context of large systems such as libraries, hospitals, and technological infrastructures. As an illustration, systems-oriented research typically asks questions that focus on the system itself—for example, a library user study that asks “what do you like about our library,” “what don’t you like about our services.” People-oriented research, in contrast, would instead ask the library user to talk about his or her needs, and how the library met or did not meet those needs.

Also central to the sense-making approach is the understanding of a given user’s decisions and choices being situated in a specific time and space context. Sense-making conceptualizes the user as traveling on a life path, and encountering obstacles or challenges that force detours from the expected path, as shown in Illustration 1.² These troublesome situations, or “gaps” as Dervin terms them in her model, are typically the triggers that lead a user into a given system (a need for information might lead a user to the library; a need for medical assistance might lead a user to a hospital), as well as precipitating departures from the system—either because the gap has been successfully bridged, allowing the user to continue on his or her path, or because the user was unable to bridge the gap, and thus took a different path.

² Illustration adapted from Dervin & Clark (1987)

The sense-making methodology attempts to isolate what it is about an individual's experiences that leads them to choose a particular path through a system, and to discover how it is that individuals handle troublesome situations in their navigation of a system. Dervin defines a troublesome situation as "any situation . . . where a person faces some kind of gap preventing movement ahead," and provides the following possible characterizations of such a situation:

- being out of control and seeming to have no direction
- being dragged down a road not of your own choosing
- having to choose between two or more roads ahead
- facing a barrier between you and where you want to go, and
- needing to follow someone who has been there before. (Dervin & Clark, 1987, p. 27)

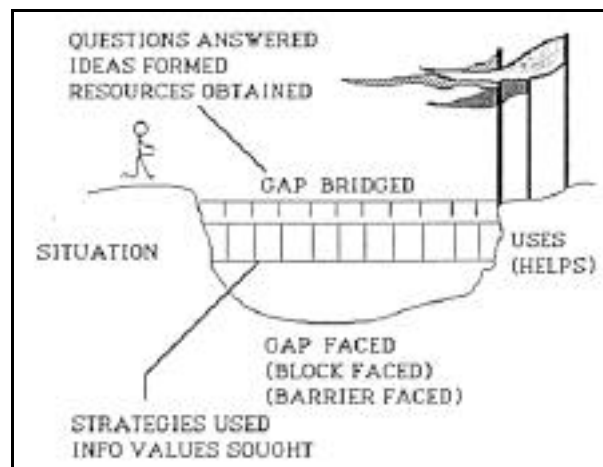


Illustration 1: The Sense-Making Metaphor

Sense-making does not assume that a researcher can tell by observation alone—whether that observation is direct or through the lens

of collected statistics—how people see themselves as blocked, or how they can be helped through their troublesome situations. Rather, it encourages the researcher to ask what Dervin calls “significant questions” about people’s experiences, focusing on the blocks (what stops the person from accomplishing their goals), the questions (what information does the person seek), and the helps (what assistance would the person like to receive). These questions form the “sense-making triangle” shown in Illustration 2,³ allowing the researcher to circle the experiences of the individual and begin to make the difficult topic of human motivations approachable in a systematic way.

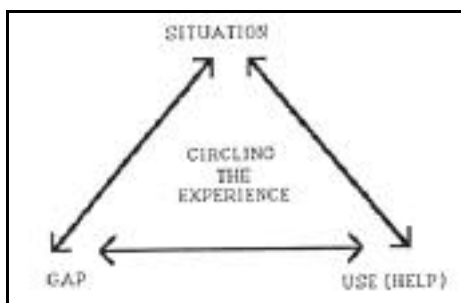


Illustration 2: The Sense-Making Triangle

The basic sense-making research tool is a “time-line” interview, during which the subject is asked to reconstruct, step-by-step, a specific problematic situation, focusing in turn on each of the sides of the sense-making triangle—the blocks encountered, the questions arising, and the helps sought. This interviewing process is highly detailed and time-

³ Illustration adapted from Dervin & Clark (1987)

consuming, but yields a richness of results that is difficult to match in any other form of interviewing. Because such interviewing is not always practical, however, the sense-making techniques have also been adapted to a number of other methods, including brief interviews, questionnaires, and document analysis.

Dervin addresses the concern that the focus on a relatively small number of individual experiences does not provide a sufficiently generalizable picture, saying:

[S]ense-making assumes that people's stories, told in their own words, are as useful results of systematic research as counts of this and that. Statistics indicate the magnitude of achievements or problems—how many did this? How many failed to do that? The stories behind these counts make the numbers live and give them a reality that speaks eloquently. (Dervin & Clark, 1987, p. 36)

As noted in the literature review, descriptive statistics have already been used by many researchers to indicate the magnitude of the doctoral attrition problem, both in graduate study as a whole and in LIS doctoral study specifically. What remains to be discovered are the stories behind the numbers in LIS attrition; to address that need, the sense-making time-line interview method has been used to uncover those stories and provide a richer picture of the doctoral student experience.

This approach is also suggested by Tinto (1987), who argues that our current understandings of student attrition are seriously flawed specifically because we do not look at the time-space context of student decisions to leave their schools:

Successful retention efforts are difficult to mount, if only because of our continuing inability to make sense of the variable character of student leaving. Despite the extensive body of literature which speaks to the question of student departure, there is still much we do not know about the longitudinal process of student leaving and the complex interplay of forces which give rise to it. Furthermore, much of what we know is wrong or at least misleading. A good deal of the literature on student dropout is filled with stereotypes of the character and causes of student departure. For instance, student dropouts have been frequently portrayed as having a distinct personality profile or as lacking in a particularly important attribute needed for college completion. As a consequence, we have been given the mistaken view that student dropouts are different or deviant from the rest of the student population. (p. 3)

This argument bolsters the appropriateness of sense-making as a tool for understanding attrition, since it is one of the few methodologies that does address the “variable character” of the people and events it studies, and acknowledges the time-space situatedness (“longitudinal process”) of those events and activities as well.

When sense-making research focuses on needs assessment, the interview focuses on the “what” questions: what gaps were faced, what questions were asked, and what helps were sought, with an emphasis on the nature of the gaps encountered. In contrast, sense-making research on accountability focuses more on “whether” questions: whether gaps were faced, whether questions were answered, and whether helps were sought, and places particular emphasis on the nature of the helps encountered and the role of the institution in providing those helps. At the beginning of this study, the primary focus was on the nature of the gaps faced by students, and the survey instrument was designed using a needs assessment

approach. However, as the research progressed, it became clear that respondents also were addressing the issue of whether or not gaps were faced, and how those gaps were or were not bridged when they existed. Their stories were often focused on the accountability of their doctoral programs, and analysis of the role of institutional “helps” or bridges became a secondary focus of the research.

Interview Instrument

In developing the instrument for this study, surveys and interview protocols created by other researchers in a variety of sense-making research projects were used as a model. Most were drawn from unpublished documents provided to interested researchers by Dervin in what she terms her “sense-making packet,” and all are available upon request. The initial draft of the instrument was submitted to an electronic mailing list of people interested in, and familiar with, Dervin’s sense-making methodology and interviewing techniques. The responses received from participants on that list were then incorporated into the final draft of the instrument.

In a response to a request for assistance in developing the instrument for this study that was posted to that sense-making mailing list, Dervin commented:

The topic . . . deals with what I call path-changing -- moments of BIG gap-bridging when people change the roads they are on. It's important, I think, in studying such moments to free oneself as much as possible from pre-conceptions -- e.g. that money drives

these changes, or that these changes are self-controlled, etc. -- because these pre-conceptions lead one to "name" the world for respondents/informants. . . .

[S]he might consider not studying her topic directly because to do so catapults respondents into a world so constrained by expectations. Think, for example, of the difference between asking people about major times in their lives when they made path-changes, or perhaps times when they set out to do one thing and ended up doing another. Compare this with asking them what happened that led you to drop out of LIS? (personal communication, September 25, 1996)

This indirect approach to the topic being studied is something that sets the sense-making methodology apart from many other forms of qualitative and quantitative research. Sense-making's focus on the time-space situatedness of the "troublesome situation" means that the decision to attend (and/or leave) a doctoral program must be viewed in a larger context, one that the researcher cannot identify independently of the subject. What are the troublesome or significant situations that lead people off their previous path into doctoral study, and what are the situations that lead them back out of their doctoral problem? Once those situations and associated "gaps" have been identified, one can more easily identify the "helps" that they find in the doctoral program that either solve the gap that led them there, or keep them from detouring back off again.

Based on Dervin's advice, the draft instrument was modified to use two focal situations; the decision to enroll in a doctoral program, and a particularly difficult time or incident during graduate study. This allowed the indirect approach to the decision to leave (keeping in mind that the

subjects would still be fully aware of the purpose and focus of my study), as well as making the instrument appropriate for expanding the study to students who had completed their programs if that appeared necessary during the course of the research.

The initial questionnaire was tested through two in-person interviews with subjects already selected for the study (see the section below on “Selection of Research Subjects”) during the 1997 Midwinter Meeting of the American Library Association (held in Washington, DC, in February of 1997). While the process was effective in eliciting some information about gaps faced and bridged when entering and leaving the doctoral program, it did not provide the depth of information necessary for this research; in particular, it did not seem to elicit sufficient information about the attrition decision. Based on that experience, a third focal situation was added to the questionnaire, focusing more directly on the decision to leave the doctoral program.

Use of Electronic Mail for Research Interviews

Early in the development of the research methodology, electronic mail was chosen as the communication medium for the timeline interviews. This decision was made for two reasons. The first was pragmatic—the research subjects were likely to be widely dispersed, making it extremely difficult to schedule face-to-face interviews without significant travel expenses. The second grew out of this researcher’s

interest in testing the effectiveness of the increasingly pervasive communication medium of electronic mail in the context of a qualitative, sense-making study.

Electronic mail has become a common medium for researchers using quantitative survey methods, particularly those involved in market research (Mehta & Sivas, 1995; Schaefer & Dillman, 1998; Swoboda, Muhlberger, Weitkunat, & Schneeweiss, 1997; Tse et al., 1995). However, an extensive literature search—supplemented by mailing list queries directed to current researchers—reveals that it has not been used nearly as widely in scholarly and/or qualitative research. Given the benefits it affords both researcher and subject, this is surprising. Gaps of time and space can be easily overcome through the asynchronous communication of electronic mail, allowing extended interviews with subject who would otherwise be available only for short interviews, if at all. The use of electronic mail also provides an instantaneous transcript of all interaction, allowing both the researcher and the subject to review responses and engage in iterative analysis throughout the interview process.

Kerlin (1997) is one of the few current researchers who has used electronic mail for interviews in a qualitative research study. In her dissertation about women in doctoral programs, Kerlin notes that the use of electronic mail in the context of qualitative research has a number of unique characteristics. Kerlin found that the relationship between the

researcher and subject is an unusual mix of intimacy and distance—intimacy based on the very personal content that often emerges in the course of the sense-making interview, and distance due to the fact that the researcher and the subject have no face-to-face contact during the interview process. Kerlin also found that the process of locating subjects was expedited significantly through the use of electronic mail. She also made note of the significant issues of privacy and security that can affect the willingness of the subject to respond freely to the researcher's questions.

For this study, it was possible to compare the results of in-person interviews and online interviews. The first two subjects were interviewed in person in February of 1997; those subjects were later interviewed via electronic mail as well, using the revised version of the survey instrument. All other subjects were interviewed using electronic mail only. Analysis of the results indicated that the subjects who were interviewed using both methods provided much richer and more reflective responses in the electronic mail versions of the interviews. I also found that the subjects who were interviewed only by electronic mail provided answers that were at least equivalent (and at times richer) in depth and detail to the second interviews of my initial subjects, reducing the likelihood that those subjects provided more detailed results because it was their second exposure to the questions.

Selection of Research Subjects

One of the greatest challenges facing researchers studying doctoral attrition is the identification of research subjects. This problem is due in part to the fact that many students leave their programs quietly, without giving any form of official notification to their institutions. This is particularly true for students who leave their programs during the dissertation phase. Rather than active process, the attrition is passive, becoming clear only as time passes and the dissertation is not completed and defended. Another difficulty faced by researchers trying to identify students who have left their programs is that institutions do not routinely track students who leave their programs; typically, data are collected about current students and alumni. Compounding these problems is the fact that institutions can be unwilling to share information about students who have left their programs, because it might reflect negatively upon their program, and because—perhaps more importantly—of the privacy and confidentiality issues related to sharing student information.

Because the field of LIS is relatively small, identifying individuals who have recently left LIS doctoral programs, particularly those who have left to pursue careers in high-tech fields, could have been difficult. Electronic mailing lists in the field of LIS, however, proved to be an extremely effective medium for identifying research subjects. In the fall of 1996 and spring of 1997, messages were posted to the JESSE mailing list

for LIS educators, and to the DOCDIS mailing list for doctoral students in LIS. In those messages, the proposed research was described, and readers were asked to reply if they were interested in participating in my study, or knew of someone who might be interested. The criteria listed were that potential subjects had to have been enrolled in a doctoral program in library and information studies, and had to have made a decision to leave that program during the 1990s.

From these initial inquiries, responses were received from eight individuals. Three others were approached based on this researcher's personal knowledge of their departure from doctoral programs. After more detailed information about the research, as well as informed consent forms, were provided to all potential subjects, the initial pool of eleven was reduced to seven people. The seven participants included four men and three women, ranging in age at the time of the interview from 31 to 57, and representing six institutions. All seven participants completed the sense-making interview via electronic mail during the summer of 1997.

CHAPTER FOUR: MAKING SENSE OF THE DATA

“That’s absurd,” objected Milo, whose head was spinning from all the numbers and questions. “That may be true,” [the Dodecahedron] acknowledged, “but it’s completely accurate, and as long as the answer is right, who cares if the question is wrong? If you want sense, you’ll have to make it yourself.”

—Juster (1961)

One of most difficult stages of this research came after the data had been gathered, when this researcher was faced with a mass of raw data that had to be organized, read, analyzed, and interpreted in a way that would—ideally—coax and reveal information and meaning from the content. While the choice of Dervin’s sense-making methodology provided some structure for thinking about and discussing the results gathered through the interviews, a balance had to be struck between imposing a methodological structure onto the data, and allowing the data to reveal its own characteristics and structure through in-depth and iterative reviews.

Of particular use to this researcher in this process were the ideas put forth by Becker in his book *Tricks of the trade: How to think about your research while you’re doing it* (1998). Becker outlines a series of “tricks,” methods he has used himself and has suggested to graduate students in sociology, to solve the problem of how to make sense of one’s data. In his

discussion of the frustration students often have when they are confronted with data that seems incoherent and scattered, he says:

My trick here is a version of an old parlor game. In the game someone says, for instance, “Nine Wagner.” The object of the game is to imagine the question that is the answer to. In this case, the question that elicits this answer is “Who wrote this piece? Mozart?” And the answer (I took liberties with the spelling) is “Nein! Wagner!” So, trying to figure out what you are doing, you say to yourself, “The data I have here are the answer to a question. What question could I possibly be asking to which what I have written down in my notes is a reasonable answer?” (p. 121)

At first, this approach seems problematic, since it leads away from the initial premise of most research inquiries—that one has a research question firmly in mind, and concepts related to that question that shape both the research and the researcher’s understanding of the individual cases studied. But Becker argues that allowing the concept to define the case in that way is in fact *more* problematic, because in so doing, the researcher fails to “see and investigate those aspects of our case that weren’t in the description of the category we started with.” (p. 122) Instead, he suggests that the researcher allow the case to define the category, allowing the details discovered in the research to add to a model that encompasses the cases studied.

The obvious criticism of such an approach is that it could make it difficult, if not impossible, to create generalizations and build theory out of one’s findings. If the case defines the category, what are we testing or evaluating in our analysis? Becker responds to this concern, too:

Letting the case define the concept lets you define dimensions you might see varying in other cases. You discover that the executives of savings and loan associations sometimes steal money by manipulating banking regulations whose complexity makes it difficult for prosecutors to decide whether what they indisputably did is a crime. That identifies an aspect of “crime” you would not see in cases of a assault, where no one doubts that hitting someone with a club is a crime. The generalization that results from your study is that the clarity or ambiguity of an action’s criminality, and the things that affect that, are something to include in all future studies of “crime.” In a way, the result of working like this is not more answers, but more questions. (p. 125)

As discussed in Chapter 2, the purpose of qualitative inquiry is often to determine what questions to ask in subsequent research, and what variables to test through quantitative analysis. In that context, Becker’s approach of generating more questions—rather than answers—provides a useful approach for beginning to consider the data gathered in this study.

Conceptual Models and Data Analysis

While allowing the data to shape the development of the questions and the subsequent analysis is a valuable approach, the conceptual models used to frame the research questions, develop the methodology for the research, and collect the data, cannot help but have an impact on the analysis. A researcher who begins with a theoretical framework focused on the testing of discrete variables based on analysis of numerically-scaled responses to questions on a survey instrument cannot easily shift gears after the research has been completed and instead choose to use a qualitative approach to analyze the data. In the case of this research

project, the choice of Dervin's sense-making model and methodology shaped not only the research question and the methodology, but also the paths available to analyze the resulting data.

Preparation of the Data

The use of electronic mail for the interviewing process presented some unusual requirements in the preparation of data for review and analysis, and some specific challenges in the reading and analysis of the data. Because the interviews took place in text messages rather than in-person meetings, no transcription of audio or videotapes, or collation and inclusion of interviewer's notes, was necessary. However, although the responses from research subjects were already de facto "transcribed," the text required some manipulation before it could be analyzed effectively.

In the first step of this process, messages sent to and received from each participant were concatenated into a single file per respondent. The mechanical information ("headers") related to the transmission of the messages was then removed from the transcripts, as were the names of the respondents. The content of the messages was edited in order to remove redundant or superfluous interviewing material (such as lengthy quoted repetitions of the questions provided in the responses by the participants, or the standard language used in each question to clarify answering procedures). The goal in this editing process was to create narrative documents that left the participant responses intact, but removed the

redundant interviewing information, or responses that were solely related to process rather than content (e.g. messages that said things like “I’ll send my next response on Friday”). Information retained included the dates of the messages, brief versions of the interview questions themselves to frame the responses, and the responses to the questions.

In order to facilitate later analysis of these transcripts through the use of the QSR NUD*IST qualitative data analysis software package, the narratives were also edited to remove line breaks, and create paragraph units that could be identified and analyzed individually.

With each modification to the data, the previous version was retained for reference purposes. At the end of the process, multiple versions of the interviews were archived: the original, individual, unedited e-mail messages; the concatenated but unedited collections of messages to and from each respondent; and two edited narrative versions of each of the respondents’ interviews—one for printing and reading, and one for use in the data analysis software package.

Assessment of Analytic Techniques

Dervin and others who have used the sense-making methodology for qualitative research suggest that the researcher’s first step in data analysis should be an immersion in the data, accomplished through multiple readings and re-readings of the narrative documents (Hoover, personal communication, March 1999). As Dervin describes it, the goal is

to “live inside their stories” (personal communication, March 1999). The first step in this data analysis process, then, was to read through the narratives many times, in order to develop a deep familiarity with the respondents’ doctoral experiences.

The reading process began with review of the electronic versions of the edited transcripts of the interviews. During repeated readings of these electronic documents, initial impressions about themes and emergent concepts were recorded in a separate notes file. While these initial readings and notes were not a direct part of the coding and content analysis process, the preliminary list of ideas generated during this reading eventually served as a valuable resource during the more structured analysis portion of the research.

After several weeks of reading and note-taking in the electronic environment, however, the process had not become sufficiently “immersive,” possibly because reading on the screen is not as well-suited to deep connection with the content as is reading on paper. As a result, the transcripts were each printed out for paper-based reading and marking of codes and concepts. For this paper-based review of the material, Dervin’s suggestions for preliminary coding were followed (personal communication, March 1999): transcripts were printed out so that the text took up only one half of each page, each transcript was read multiple times to facilitate immersion in the stories, and the transcripts were then

color-coded using different colors to indicate situations, gaps, bridges, helpful outcomes, and hurtful outcomes. As themes emerged from the repeated readings and marking up of the transcripts, they were recorded in a separate text file for later use in the qualitative data analysis software package.

The difference between the reading of these transcripts in electronic form and the review of them in paper form was significant. Themes and concepts emerged much more quickly from the paper-based readings of the narratives. A number of factors contributed to this difference in results. First, the ability to touch as well as see the transcripts, as well as the ability to carry them around and re-read them in settings where a computer would not be accessible contributed to the sense of immersion in and connection to the stories themselves. Second, the paper transcripts lent themselves more effectively to highlighting in multiple colors; while current word processing programs offer this ability to a limited extent, it is slower and less intuitive than simply picking up a colored highlighter. Finally, and perhaps most importantly, the use of paper transcripts allowed simultaneous viewing of multiple transcripts and pages that would be impossible on a computer screen (barring access to multiple large, high-resolution monitors).

As a new generation of researchers begins to work with computer-based analysis programs, we may see changes in the effectiveness of these

computer-based tools in the initial process of data analysis. Researchers who grow up learning to read on a screen as well as on paper, and who have access to advanced technologies that improve the usability of programs and the display of information, may find that they are able to achieve better results with electronic tools than with paper—much as we have seen a change in the number of people who find that they can now compose text better using word processing than they can using pencil and paper or typewriters (Becker, 1986).

Preliminary Thematic Analysis

When asked about an “entry point” for coding data in sense-making research, Dervin and others have said in mailing list postings and personal communications that the entry point is really in the “center” of the triangle. That is, rather than beginning with a specific focus on one corner of the triangle—the situations, the gaps, or the helps/bridges—one must first code the data broadly, looking for themes related to all aspects of the sense-making triangle. In so doing, the researcher is better able to identify unexpected themes that may emerge from the data, and build an understanding of the sense-making process without predefining the categories for that understanding. From that initial process will emerge a picture of the data that will then facilitate the selection of an appropriate focus for more detailed coding and analysis.

Thus, the first round of coding of the interview transcripts involved identifying recurrent and/or significant themes that emerged from the responses. These themes were identified during the iterative readings of on-screen and printed documents described in the previous section. Each theme was categorized as a situation, gap, block, or outcome, and the number of respondents describing that theme were noted for each.

The initial attempt at thematic analysis was done using the NUD*IST software, but it became clear early in the process that the limitations of the software were particularly problematic in this preliminary thematic coding. For the reasons described above, it was difficult to see the “big picture” necessary in order to identify broad themes.

In addition, what had at first appeared to be a fairly straightforward task—doing preliminary identification of situations, gaps, bridges, and outcomes—turned out to be a very challenging process. The narratives provided by the subjects did not always provide clear boundaries between situation and gap, gap and bridge, bridge and outcome, hurts and helps. What at first glance might look like a situation—based on the structure and wording of the subjects’ response—would later appear instead to be a gap or a block. For example, when asked to describe his second focal situation, Subject 4 provided this answer:

In the spring of 199x, when I had completed virtually all of the required coursework for my program, it was time to plan a schedule for advancing to candidacy and completing a dissertation.

Initial coding of this narrative identified the situation as “planning a schedule for advancing to candidacy and completing dissertation,” both because the subject had described it as such, and because the preliminary literature review seemed to support a focus on the specific discrete stages of the dissertation process as an important data point in the attrition process. However, repeated reading of this narrative resulted in an additional coding of the situation, because later description of this situation by the subject made it clear that the focal situation was actually specific meetings with and comments from academic advisors related to the scheduling process. In the context of the overall project, it became clear that a key theme was the interactions students had with their advisors, and the way they perceived their advisors as helping or blocking them; this made it important to identify the situations involving interactions with advisors, even if the initial description of the situation did not use those terms.

In order to aid in the process of coding the narratives, colored highlighters were used to differentiate between situations, gaps/blocks, bridges, helpful outcomes, and hurtful outcomes. This color-coding allowed for quick visual scans of the narratives to look for repetitions of concepts or phrasing within a given category, both within a given document, and

across documents. As each concept was identified, it was added to a text file, so that repetitions could be identified as they occurred. In addition, after each narrative was coded, other narratives were scanned for similarities that might not have been identified in previous codings. This iterative process allowed for repeated comparisons among documents that would have been difficult or impossible with the software analysis tools available, but that worked effectively with printed and color-coded transcripts.

What resulted from this preliminary thematic analysis was a preliminary list of major themes in each of the sense-making categories, which was then used as a basis for identifying an “entry point” into the sense-making triangle, and for developing a framework for a more in-depth analysis based on a deeper understanding of the data. That analysis scheme could then be used to suggest a more detailed coding and content analytic process that could be implemented in future research.

Content Analysis and Theory-Building

In her draft paper on content analysis, Dervin (1991b) defines content analysis in the context of sense-making as

A systematic and publicly accountable means of interpreting (usually referred to in traditional CA as analyzing) the symbolic aspects of some specific phenomenon in order to submit the resulting interpretations to qualitative and/or quantitative study. (p. 1)

In a detailed discussion of this definition that follows, Dervin notes the importance of her use of the term “interpreting,” in contrast to terms used more commonly in describing traditional content analysis, such as “measuring” and “extracting.” She describes this approach as taking a middle road between the need to name and categorize data in order to hypothesize relationships among aspects of phenomena, and the need for a more holistic, interpretive framework for understanding and describing phenomenon such as human sense-making that does not fit neatly into the predefined categories and variables typically associated with content analysis.

The idea of “public accountability” is also important in this definition, since it is used in such a way as to address the issue of “objectivity” in the context of qualitative data gathering, and the analysis of that data. As discussed in Chapter 2, qualitative and quantitative researchers have traditionally clashed over the idea of objective vs. subjective construction of results and conclusions. Qualitative researchers typically acknowledge the difficulty of removing the observer from the process, and often argue that there is no such thing as a truly “objective” view, since all research results are viewed through the lens of the researcher’s own knowledge, experience, and chosen methods and models. The use of the concept of public accountability in this definition of content analysis acknowledges the problematic nature of objective definitions and

analysis, while still providing a mechanism for assessing the reliability and validity of the data analysis method and results.

In this context of content analysis, a variety of coding methods and techniques have been used to analyze the data gathered from sense-making interviews. While they all focus on the sense-making triangle (situation, gaps, or helps), the way the aspects have been operationalized and measured has varied based on the needs of the researcher and the goal of the study. In one of her early assessments of sense-making research Dervin (1983) outlined a range of these descriptive measures. Situations have been analyzed for their movement state (“the way in which the person sees his/her movement through time-space being blocked”), as well as their embeddedness (“the extent to which the person sees the situation as related to other situations”). Gaps and blocks have been analyzed for their ease of answering, importance of answering, source of answers, and answering success, as well as for specific source and relevance to the larger context. Bridges, uses, and helps—which can consist of information, answers, ideas, contacts, resources, emotions, feelings, or other often intangible items, as shown in Illustration 3⁴—have been analyzed based on the way the individual perceived the gap-bridging element as helping them, with a particular emphasis on the time-space component of the process.

⁴ Adapted from Dervin & Clark

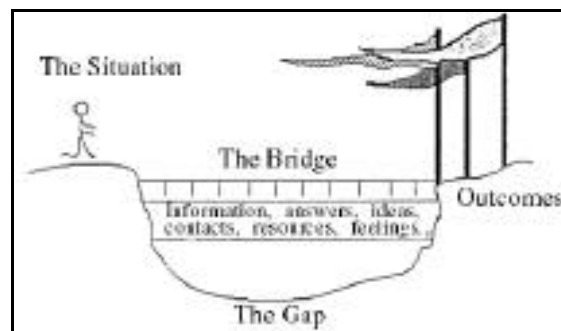


Illustration 3: The Sense-Making Bridge

The final piece of the model, outcomes, has also been categorized with that focus on movement through time and space, with descriptors such as the following used to label the outcomes:

- got pictures/ideas/understandings
- able to plan
- got started/got motivated
- kept going
- got control
- found situation easier/calmer
- got out of or avoided a bad situation
- reached the goal/accomplished things
- got support, reassurance, confirmation
- got connected to others

While all of the above categories are conceptualized as “helps,” they can also be stated in the form of “hurts” (e.g., “unable to go on to other things” or “did not connect to others”). This alternative characterization of the results of gap-bridging behavior is important, since not all situations result in the successful bridging of a gap. In particular, studies like this one that set out to evaluate why systems are not successful must include

acknowledgment of unsuccessful gap-bridging attempts, and have a method for identifying and characterizing those occurrences.

The initial goal of the preliminary thematic analysis was to form the basis for the development of a specific content analytic scheme similar to those described by Dervin in other sense-making studies. However, as the thematic analysis progressed, it became clear that there was still insufficient data about the phenomenon to build a detailed analytic coding scheme. The development and application of a specific content analysis scheme might well be the goal of the projects that follow this one. But for this project, the focus had to be on the identification and analysis of general themes emerging from the sense-making view of the narratives. From the more detailed thematic analysis can emerge a clearer picture of the components of the sense-making triangle in these attrition experiences—the situations, the gaps, the bridges, and the outcomes. This approach is in keeping with the initial direction proposed for this work as a theory-building step in the investigation of attrition in LIS doctoral programs, rather than as a theory-testing or validation step.

The development and application of a specific content analysis coding scheme such as those outlined by Dervin require that the variables are clearly identified, and that a sufficient number of responses has been collected to provide an environment for testing hypotheses about those variables. In contrast, the coding process in this project involved refining

the broad thematic analysis process, and beginning to identify a set of identifiable factors related to situations, gaps, bridges, and/or outcomes. Those factors could be operationalized and tested in future studies of students in LIS doctoral programs. The sense-making model was used primarily to provide an appropriate framework for asking questions that elicited meaningful responses from the subjects, and for guiding the identification and categorization of themes and issues in the responses.

Detailed Thematic Analysis

The next step, then, was to enter the data into the NUD*IST software in order to refine the coding and analysis of the narratives, and to facilitate the querying of the data for similarities and relationships that would strengthen any conclusions deriving from the data. Now that preliminary themes for each of the major categories—situations, gaps/blocks, bridges/helps, and outcomes (hurts/helps)—had been identified, it was easier to structure a coding tree to use in the software. It was also necessary to prepare the electronic transcripts in such a way as to facilitate the use of the software for identifying appropriate segments of the narratives.

Dervin (1991b) has also provided guidelines for conceptualizing the units of analysis that can be coded in the sense-making research process, a key element to be considered when using software-based tools for the coding and initial analysis of data. She identifies these units as falling into

three primary categories. First are the sampling units, which can be clearly defined as physically separate from each other; in the case of this research, the sampling units were the transcripts of each individual subjects' responses, each of which was stored in a separate text file.

Second are the recording units, which allow the responses to be segmented into separate units, and to which variables are typically ascribed. In the case of this research, the most obvious recording units are the respondents themselves, since the variables being considered are focused on the experience of each individual respondent. However, for the purposes of this research, another approach to identifying recording units was to break down each response into the situations, gaps, bridges, and outcomes associated with the response, coding each of these separately. In the analysis of these responses, in fact, both approaches were appropriate, and both were used. Because the NUD*IST software allows for the construction of multiple coding "trees," each of which can focus on different aspects of the data, it was possible to create a set of codes that could be applied to recording units focused on the components of the sense-making model, and another set of codes that could be applied to recording units focused on the individual respondents.

The third set of coding units Dervin describes as context units, defining these as "that portion of the total symbolic material for a given recording unit which may enter into the description of the recording unit

on a particular variable.” The examples she provides for context units are answers to specific interview questions, or, in some cases, the interview transcript as a whole. For this research, the context units were the responses to individual questions, with a sub-unit of the paragraphs in the response, since the paragraph is the smallest unit that NUD*IST uses for assignment of codes.

Based on the preliminary thematic analysis, initial categories were drawn from multiple readings and interpretations of the printed narrative transcripts. A coding tree was developed in NUD*IST that represented the four components of the sense-making environment, and within each the broad themes that had emerged from the initial review. The flexibility of the software provided for the addition of subcategories below these broad categorizations, as well as modifications to the categories even after they had been applied as codes.

In addition, the process of re-reading and iterative coding within the software package also generated a number of new categories that were suggested by the re-examination of the data itself, as well as prompting shifts in the organization of the coding categories throughout the analysis.

The results of both the preliminary thematic analysis and the more detailed software-assisted thematic analysis are presented in Chapter 5, which provides an analysis of the results of the study.

CHAPTER FIVE: RESULTS OF THE STUDY

“Carry this with you on your journey,” he said softly, “for there is much worth noticing that often escapes the eye. Through it you can see everything from the tender moss in a sidewalk crack to the glow of the farthest star—and, most important of all, you can see things as they really are, not just as they seem to be.”

—Juster (1961)

The analysis of the responses provided by the participants in this study yielded interesting results. In some aspects, the results supported the findings of other researchers in doctoral attrition, while in others it showed factors that appear to be important primarily in the field of library and information studies. Given the diversity of the respondents in this research, it was at times surprising how clearly certain themes emerged as consistent threads in their experiences; those themes are discussed in detail in this chapter, and form the basis for the conclusions presented in Chapter 6.

This chapter includes significant amounts of quoted material from the participants’ responses. For the most part, these responses are provided with no changes from their original form. However, for the sake of clarity, a few modifications have been made. First, in places where the respondents used ellipses in their responses, em dashes have been substituted; this was

necessary in order to differentiate between their responses, and any abbreviations of those responses (which are indicated by ellipses). Second the minor typographical errors that are typical of the often casual medium of electronic mail have been corrected. None of these corrections have any impact on the meaning or content of the responses, and they would not have appeared in written transcripts of verbal responses to the questions. And third, references to particular institutional, program, faculty, and project names have been replaced with generic versions placed in square brackets (e.g. [Southwest A]) in order to preserve the anonymity of the respondents.

Participant Demographics

Part of the questionnaire administered to the participants in this study requested basic demographic information. The data from that section of the questionnaire is presented in Table 2.

Table 2: Participant Demographics

Subject Name ⁵	Age (1997)	MLS to PhD	Entered PhD	Yrs in PhD	School
Jason	40	5	1993	3	Southwest A
Christine	39	3	1995	0.5	Midwest
Stephen	31	3	1993	1	Midwest
Marshall	49	9	1985	9	West Coast
Maya	57	7	1988	9	Northeast
Patrice	40	2	1988	2	Canada
Ian	40	n/a	1994	3	Southwest B
<i>Median</i>	40	4		3	
<i>Average</i>	42.29	4.84		3.93	

At the time these participants were surveyed in 1997, their ages ranged from 31 to 57, with a median age of 40 and a mean age of 42. Of the seven participants, four were men and three were women. This age range is in fact representative of doctoral students in LIS, since students typically enroll in LIS doctoral programs after completing an MLS or equivalent degree and then working in the field for some time. Unlike many other academic fields, it is rare—though not unheard of—for students to enroll in a doctoral program immediately upon completion of their MLS. In the case of these respondents, none had a gap of fewer than two years between completion of MLS and start of doctoral study; the

⁵ The names provided here and throughout this chapter are aliases, used in order to protect the anonymity of the participants. On the informed consent letter provided to them participants were given the option to have their own name used, or to have a pseudonym assigned; almost all opted for the pseudonym. As a result, pseudonyms were used for all participants.

median number of years between programs was four, and the mean was 4.84.

There was more variation in the number of years between the participants enrollment in their doctoral programs, and the point at which they considered themselves to have left their programs. (In many cases, there was no formal departure from the program; as a result, participants gave approximate dates, based on when they felt they had made a clear decision not to continue to pursue their doctoral degrees.) The range here was from half a year to nine years, with the median being three years, and the mean just under four.

The seven participants had attended six different universities, all in North America, and all with ALA-accredited MLS programs. The programs represented were geographically distributed, including two schools in the Southwest U.S., one on the West Coast, one in the Midwest, one in the Northeast, and one in Canada. Only the Midwest school had more than one respondent in this study. To protect the anonymity of the respondents, the schools are not referred to by name in this report; instead, the institutions are listed by their geographical region, as shown in Table 1.

The Association for Library and Information Science Education maintains some statistics about students in the 27 doctoral programs at member institutions. Relevant information from the most recent statistical report (Daniel & Saye, 1998) is summarized in Table 3. Because

the information about age is provided in ranges, rather than as discrete numbers, it is not possible to generate accurate mean or median ages for LIS doctoral students as a whole. However, it is possible to determine that very few of the students (< 3%) in these programs are in the traditional post-baccalaureate age range of 20-24, and that only 15.4% are under the age of 30. It is also clear from these statistics that while women make up the majority of doctoral students at these institutions, slightly more of these women are older students, with 55.47% of the women and 47.83% of the men older than 40.⁶

Table 3: Ages of Doctoral Students at ALISE Institutions

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	>54	NA	TOTAL
Male	6	42	51	45	39	32	26	7	28	276
Female	9	43	48	67	61	64	43	14	26	375
Total	15	85	99	112	100	96	69	21	54	651
Age %	2.3%	13.1%	15.2%	17.2%	15.4%	14.7%	10.6%	3.2%	8.3%	

Participant Profiles

These brief participant profiles provide some context for understanding the responses and analysis that follow in this chapter. This researcher was able to get to know the participants through their responses and through “off the record” exchanges that preceded and

⁶ The fact that ages were not available for 28 men and 26 women means that these figures could be slightly skewed.

followed the formal interview process—and that understanding of the people behind the stories enriched the understanding and analysis of their responses. By reading these thumbnail sketches of the respondents, which focus on key aspects of their lives and their situations, the reader of this work can begin to form a similar context for understanding the analysis that follows.

Subject 1: Jason (Southwest A)

Jason's path into library science started after completion of a computer science degree in the mid 1980's. After finishing his MLS in 1988, he went on to a series of library automation positions at large academic libraries. Upon leaving one of these positions in 1992, he was recruited into the doctoral program at Southwest A, the school where he had also received his MLS. From the beginning of his time in the program, his primary concern was that his degree reflect a focus on information and technology, rather than on traditional library and information studies. This theme dominates his responses to the interview questions, as in this example from his response to question 2 (framing the first focal situation):

When I received the offer to enter the program I was of the opinion that a PhD in library science would not be useful to me. The director of the program assured me that a name change would occur so that the word "library" would no longer be a part of the degree program.

Jason also began his doctoral program knowing that he might need to make a choice between obtaining a Ph.D., and pursuing an

entrepreneurial career, and much of his decision-making while in the program focused around this choice:

I wondered what would happen first. . . would I begin taking on enough business to go it on my own, or would the School change its name and direction so I could feel good enough about it to buckle down and study hard.

Eventually, Jason did choose to pursue the entrepreneurial path, and he now runs a successful Internet-focused company.

Subject 2: Christine (Midwest)

Christine also took a circuitous route into the field of LIS, spending seven years in the U. S. Air Force before beginning her MLS program. In her timeline of significant path-changing events, she noted her entry into and departure from the air force, her entry into the MLS program, and her departure from the doctoral program in which she was enrolled. She did not, however, see her enrollment in the doctoral program as a path-changing moment; instead, it appeared to her at the time to be part of a natural progression.

Christine moved several hundred miles away from her significant other to begin her doctoral studies at Midwest, with the expectation that her partner would join her later in her studies. However, a series of personal stresses related to her partner's and pet's health made the separation particularly difficult. The pull of these personal concerns

outweighed her interest in continuing with her doctoral study, and she left the program quite soon after enrollment.

Subject 3: Stephen (Midwest)

The youngest participant in the study—at age 31—Stephen entered the doctoral program at Midwest in 1995. This was two years after completing his MLS at Midwest, so he was already familiar with the faculty and with many of the students in the program. Nevertheless, he complained that it was difficult to get the kinds of information he needed about the program, a theme that recurs throughout the narratives:

I remember on many occasions when considering the PhD program (and even after entering) when I tried to learn what the PhD program **really** was about, especially in terms of financial support and programmatic requirements (e.g., comps, number of courses, etc.). I asked a number of people: admissions, current faculty, current PhD students. I already knew and was friends with most of these people. No one ever seemed to give me a straight answer. It was eerie, almost like I hadn't even asked the question of them, or like they went temporarily deaf.

Like Jason, Stephen enrolled in the doctoral program knowing that he might be confronted with the need to make a choice between entrepreneurship and academia. Unlike Jason, however, he had few concerns about the library focus of his program at Midwest. In fact, his concerns about the program were diametrically opposed to Jason's, as he expressed concerns about the real-world viability of the projects on which he was working, and the need to acknowledge the contributions of

researchers in the field of LIS rather than shifting the focus away from traditional library and information science research:

What value would come from the time and money invested in the...research project? Regardless of the findings, would there be any meaningful conclusions? If not, why was the project structured in such a way? Why was the expertise of the field of information science (and its practitioners on the...faculty) being ignored in favor of the myopic "reinventing the wheel" approaches taken and questions asked by the engineering and AI people who were brought in to formulate and manage this project?

After only one year in the program, Stephen also chose to pursue an entrepreneurial path rather than continuing with his doctoral work, and is now a successful author and a partner in a well-regarded technology consulting firm.

Subject 4: Marshall (West Coast)

Marshall started his doctoral study nine years after completing his MLS, and spent seven years in part-time pursuit of the Ph.D. before deciding to leave the doctoral program and instead complete a certificate of advanced study. During the years he spent in the doctoral program at West Coast he went through a number of significant personal changes, including a second marriage, the birth of a child, and a change of employers. His program also underwent major upheaval, resulting in a complete turnover of his committee, and a reorganization of the program as a whole.

From the outset, Marshall had some misgivings about pursuing an LIS doctorate, a theme that recurred in the responses of many participants in this research:

Until that time, I had been interested in pursuing an MBA in management (or something) and had been hoping to find a professional program at [West Coast] that would be inexpensive and do-able within the context of my personal life.

Upon leaving the doctoral program, Marshall enrolled in an MBA program, which he completed in 1998. That degree enabled him to move into a position as the dean of library services at a small West Coast college.

Subject 5: Maya (Northeast)

The oldest participant in this study at age 51, Maya's path into the doctoral program at Northeast was quite unusual. She received her bachelor's degree as an adult student at age 33, and then spent five years working as a management consultant before entering an Executive MBA program. Two years after completing the MBA, she quit her job and returned to school again for an MSIS, after which she spent six years working in an information systems position. In 1988 she decided to pursue a Ph.D. in LIS:

[I] decided to get Ph.D. so I could teach. (I loved being on college campuses and wanted to teach at the college level.)

After having her proposal approved in 1991, Maya began a full-time job as an adjunct at a nearby LIS program. In 1993 she was diagnosed with breast cancer and underwent surgery, chemotherapy, and radiation

treatments. Following that experience, in 1994, she decided to leave her teaching position and return to a management consulting position. This change was motivated primarily by financial necessity:

Move prompted by realization that I would not be able to put enough money away to retire--I started too late in my career to be able to make a living as an academic (the salary was enough to live on but I could not put money aside fast enough to provide any kind of retirement).

In 1996 she finally abandoned her doctoral program, after realizing that the degree was not a necessary component for her to have the involvement in academia that she was interested in. In addition to working in her consulting position, she also volunteers as a tutor at the program where she had been teaching, in order to maintain some connection to academia without sacrificing her financial future.

Subject 6: Patrice (Canada)

Patrice was the only one of the participants in this study who expressed anger and disappointment over her departure from her doctoral program. Where the other participants saw their attrition primarily as a positive choice that they had made in order to pursue a different—and more desirable—path, Patrice felt pushed out of her program, and had very negative feelings about the process and the result of her two years in the Canadian doctoral program.

When recounting her timeline of significant path-changing events, Patrice noted a number of personal issues in her past that had affected both

her perception of the doctoral program and also her ability to focus on her doctoral work. She had started her bachelor's degree at age 23, and described this late start as a result of her rebellion in her late teens and early twenties:

I had never done well in public school. . . I followed a sister who was always considered a "good girl" and a good student. I chose to have a good time (read wild!!) rather than compete.

The issue of self-esteem recurs throughout Patrice's narrative, beginning with her comparison of herself and her older sister, continuing through a marriage in which her husband was mentally and physically abusive, and finally appearing in her discussion of her relationship with her doctoral advisor, whom she found "increasingly antagonistic and unsympathetic and unsupportive of problems."

Patrice left her program feeling that she had been pressured into departure, and with a great deal of bitterness about her relationship with her advisor, and a perceived lack of support from the administrator of the program. However, she appeared to see her experiences as something that other potential doctoral students could learn from. When we first discussed her participation in this research project, she wrote:

I am really really interested in your project. I hope, probably naively, that faculty's, advisor's and potential students get the chance to learn and make changes from your results. There is so much I would have done differently, knowing what I know now!

Subject 7: Ian (Southwest B)

Ian was the only participant in the study who entered the doctoral program in LIS without first having obtained an MLS. After leaving his undergraduate program before finishing his degree in 1976, he had returned to school in 1981 to complete his undergraduate work, and then entered graduate school for a master's degree in social work. After working at Southwest B for several years, he began to have an interest in LIS, and took one class in the LIS program there. The faculty members he met with encouraged him to pursue a doctorate rather than an MLS, and he enrolled in the doctoral program, seeing it as a natural career path for himself:

Since, at the time, I wanted to stay working in higher education and I realized how much the academic sector valued the doctorate, it only made sense for me, at the time, to get the Ph.D.

After three years in the program, however, Ian found that he had little interest in the research side of the doctoral work. At the same time, he began to feel that the doctorate would not be particularly useful to him in his job search:

I actually took a few more classes than I really wanted in the doctoral program to see whether I would feel a strong calling towards some research project or issue. Surprisingly, I found myself drawn more and more to the practical side. I enjoyed learning about new technologies, mastering them, and moving on. So, ironically, the more doctoral seminar courses I took, the more I realized that I enjoyed the more applied side much better.

Rather than completing his doctoral studies, at that point Ian chose instead to apply his coursework towards an MLS, and to forgo the doctorate.

Situational Themes

In many cases, the situations described by the respondents in this study reinforced the findings of other researchers into doctoral attrition. However, there were issues and themes that emerged in the discussion of focal situations that shed new light on the concerns of LIS doctoral students. The themes in this section fall into two categories: first, themes that recurred in the types of focal situations being described; and second, situations that the respondents described as being related to their focal situations, though not at the center of the process.

Locus of Decision-Making: Types of Focal Situations Reported

There were significant similarities in the types of situations that the respondents described in their narratives. This is not terribly surprising, since these definitions of interactions are quite broad and encompassing in their scope. It is interesting, however, to note the difference between the situations reported as focal situations, as opposed to those reported as related or peripheral situations. In many cases, factors that existing research into doctoral attrition have noted as central to the decision-making process do not appear in the focal situations, while they do appear in the responses to questions about related situations.

Exploratory meetings with program representatives

The situation most commonly reported by the participants appeared in the responses to the first question, which asked them to describe a situation related to their decision to begin a doctoral program in LIS. Six out of the seven respondents described some form of initial meeting with representatives of the doctoral program they were considering. Five of those meetings were with faculty teaching in the program, while one was with students who were then enrolled in the program.

Surprisingly, given the backgrounds of these participants as library scientists trained in reference and research work, only two respondents—Christine and Maya—reported doing any comparative research about the programs they were considering. Christine’s research took the form of visiting programs she was interested in, in order to get a sense of the atmosphere of the programs. Her first focal situation was a visit to Northeast (a school that she did not select, instead opting for the program Midwest), where she was not happy with what she saw:

I remember in 1994 visiting [Northeast] to see what I thought about their PhD program. ... My thoughts were, is this program good enough for me? I also thought that the students didn't look terribly happy. They looked worn-out and grumpy. I wondered if Northeast wouldn't downgrade my c.v.

While Maya also visited some of the programs she was considering, her focal situation centered not on the visits but on her research into the program content emphasis and the background of the faculty at those

programs. In contrast to Christine's decision, which was based on impressions and "gut feelings" about the schools she visited, Maya's decision was based on a weighing of more concrete and measurable factors:

I did want a program that focused on information systems and on people using those systems. I disliked the computer science curricula that I saw because the focus was on the technology not on the end user. [Northeast A] and [Northeast B] were my main choices and I was pretty well set on moving to [Northeast A]. However, I came to visit [Northeast B] because it was closer geographically to my current home in Philadelphia and because it was also close to New York City where I had friends. I found out that [two well-known information science researchers] were there on the faculty and I knew of their work from my Master's program. So the combined faculty and geography made [Northeast B] a favorite and they came through with the TA offer before [Northeast A]. So I chose [Northeast B].

The other five respondents, however, did not report evaluating more than one doctoral program when first considering the option of doctoral study. In some cases, their choices were constrained by their employment or living situations. Ian and Marshall, for example, were already employed by the institutions in question (Southwest B and West Coast, respectively), when they first considered entering doctoral programs. Stephen was living and working in the town where Midwest was located, after having received his MLS there. Jason was influenced by his wife's job opportunity near Southwest A, as well as the fact that the faculty there had actively recruited him into the program. These external factors influencing selection of a program are not surprising, given the later-in-life entry into doctoral study that is common to LIS doctoral students. By

the time they reach their thirties and forties, many people have work and family commitments that limit their geographic flexibility, and these commitments can have a significant impact on their evaluation of educational options.

Evaluation of career options

Another recurrent theme in the descriptions of focal situations was the process of weighing career options, and determining the extent to which the doctoral program would add to or detract from desired career goals. This link between expected career goals and the doctoral program was examined by Bodian (1987) in his dissertation entitled "Career Instrumentality of Degree Completion as a Factor in Doctoral Student Attrition," in which he found that lack of perceived career instrumentality was correlated strongly with doctoral attrition.

Many of the respondents recounted situations where they felt they had to weigh the value of the doctorate against one or more alternative paths. Maya addressed this as part of her first focal situation:

I was trying to think about whether or not I would be marketable in the University & College marketplace with the Ph.D. at my age. I did not even consider it as a useful tool for the general commercial marketplace of jobs--I knew that there were few commercial organizations that would value the Ph.D. in Information Science from my work as a management consultant studying jobs in organizations.

And her third focal situation, which centered around her decision to leave the program, revisited this issue of career instrumentality:

The situation related to my leaving the Ph.D. was one where I was not willing to sacrifice the time necessary to complete the degree. I think the blocked feeling was that time was required and I wasn't willing to give it. In the long run the Ph.D. makes no difference to my career as I have left the idea of academia behind.

Ian entered his doctoral program based on a belief that it would enhance his career options:

When I initially entered the program I was content to believe that there would be numerous career opportunities for someone with a Ph.D. in LIS especially since I wanted to stay in higher education. Peers on campus and my own boss (an associate dean) were encouraging, usually making comments about how marketable I would be once I got my Ph.D.

However, as he continued in the program, Ian's belief in this improved "marketability" a Ph.D. would offer began to fade, and this was one of the factors that eventually led him to leave the program:

I began to wonder whether the time and energy that I was putting into the program was worth it—I had particular concerns since I didn't have a master's degree in LIS and the positions that I was seeing in the Chronicle of Higher Education all seemed to want a Master's degree and X years of experience... many of my questions revolved around my being marketable once I had the Ph.D.

Marshall's first focal situation also centered on the career impact of pursuing a doctorate. In his initial meeting with a faculty member at West Coast, he describes the conversation as very career focused.

I had a discussion with a member of the [West Coast] faculty whose work and advice I respect tremendously. We talked generally about my career and professional interests and how I might pursue further graduate study at [West Coast].

The questions that Marshall had in his mind during this situation also focused on the career impact of the decision:

Am I motivated to go back to school by anything other than the idea of enhancing my career opportunities and earning potential?...Do I have other alternatives to accomplish my goals and objectives?

In fact, Marshall eventually decided that the Ph.D. was not going to be of sufficient career benefit to justify the time and energy he was putting into his studies, and he decided instead to pursue an MBA—a degree that he saw as having a high degree of career instrumentality for him in his intended administrative career path.

Jason discussed his sense of the value—or lack thereof—in an LIS Ph.D. for his career plans in almost all of his responses. His concerns focused primarily on the “L” word—he believed that a doctorate from a department whose name included the word “library” would be of less value to him as he pursued his interests in technology-focused teaching and consulting work than one that focused only on information science or information studies. His concern about the relationship between the LIS degree and his career plans also appeared when he speculated about the impact of potential increases in his business on his academic plans, seeing entrepreneurship as a an alternative to doctoral study, rather than as a supplement to or end result of his academic work.

Assistantship Roles & Responsibilities

While the themes described above were the most commonly reported in the participant responses, there were other themes that occurred in at least two of the participants' answers. Given the small size of the sample being studied, however, these themes still warrant some consideration as possible factors in a developing theory of LIS doctoral attrition. In particular, in their response to question four (asking them to describe a focal situation where they felt blocked or hindered during their doctoral studies), two of the respondents described situations related to their positions as graduate assistants.

When an institution offers a doctoral student an assistantship, it is an indication that the institution has a particularly strong interest in seeing that student complete their studies in the program and receive their degree. It is also a financial commitment on the part of the institution, which further strengthens their interest in the student's successful completion. It is useful, then, to look at the ways in which these assistantships may in fact contribute to the attrition decision.

Other research into doctoral attrition (Bowen & Rudenstine, 1992; Nerad & Cerny, 1993; Ziolkowski, 1990) has indicated that the support offered to doctoral students affects their time-to-completion and attrition decision in several ways. First, Nerad and Cerny found that students receiving fellowships rather than assistantships tended to have much

shorter times to completion, and lower attrition rates. Second, Golde, Lovitts, and Nerad and Cerny all found that negative departmental climate—the extent to which there were factions among faculty and lack of respect and support shown towards students—had a deleterious effect upon time-to-completion and attrition. While the former is obviously linked to students' assistantship experiences, the latter is linked in a more indirect way; if a student is working as a research or teaching assistant in their academic department, they are more likely to encounter problems related to negative departmental culture.

Jason's experiences as a graduate teaching assistant illustrated the impact of the first of these factors. The assistantship created stresses for him that were significant enough for him to describe his work in that position as the most significant block he encountered during his doctoral program.

OK, here's a good one. . . assuming by goal you mean attaining the degree, I was blocked by my "half-time" position at the School. Half time is in quotes since the job ended up being much more than half-time. The position was basically responsible for all computing at the school, and took a minimum of 30 hours each week, sometimes much more.

While the assistantship provided the financial support that he needed to continue in the program, the responsibilities associated with the assistantship were so great as to prevent him from fully immersing himself in the academic aspects of his doctoral program.

The second issue, that of departmental climate, appears in the second focal situation described by Stephen, who had a research assistantship at his institution:

During my last semester at [the school] (fall '94), I was assigned to be a researcher on [a departmental research] project. I wasn't pleased by this, because a) I was already expected to teach, b) there would be a serious time commitment to do this research, c) I had been told that I would be able to do my own research, and d) I had never gotten along with the faculty member who I was [sic] to supervise me. So, it can be assumed that I didn't go into this with the most open of minds. Once I got involved in the...project, I began to realize that there were huge shortcomings in its approach. I felt that unless some serious changes and additions were made, it would never have had any real-life applications whatsoever. In private discussions with some [school] faculty, they told me they agreed, but weren't willing to speak up. As a PhD student, I did; being a student may have shielded me somewhat in ways that faculty who hadn't achieved tenure yet could. On the project's mailing list, I repeatedly asked what real-life applications of the project would be, and why we were ignoring much of what the [relevant] literature already seemed to have established. My questions were either ignored, turned around, or addressed (but not answered) in a demeaning way by some faculty. I finally got an answer in a semi-confrontational face-to-face discussion with one of the supervising faculty.

Decision-Making in Context: Themes Occurring in Peripheral Situations

Part of the interview process involved asking respondents to discuss whether their focal situations were similar to or different from past situations that they had encountered, as well as to discuss the extent to which they saw the focal situation as related to other situations that were occurring in their lives at the time. In the latter category, a number of themes emerged that echoed findings from other research into doctoral

attrition. While the respondents may not have perceived these situations as being at the center of their decision-making process, it was clear that these issues were important to the process on some level.

Impact of interpersonal relationships

Research into women's experiences in graduate school indicate that family and personal relationships often have an impact on women's ability to persist in their pursuit of graduate degrees (Flores, 1984; Germeroth, 1990; Golde, 1996; Kerlin, 1997). While the issue of personal relationships surfaced occasionally in the narratives of the respondents, it was typically as a related situation, rather than as a focal situation. Personal relationships appeared to have played a primarily peripheral role in the decision-making process for most of these subjects, particularly in the decision to leave their programs.

Jason was married at the time of his entry into the doctoral program, and issues related to his wife's employment, as well as their long-term future, did impact his choices during his doctoral study. As mentioned earlier in this chapter, a nearby job opportunity for his wife was a factor in his decision to attend Southwest A. In his discussion of blocks and gaps encountered during his program at Southwest A, he described the difficulty of balancing the responsibilities of his assistantship with his other commitments (a theme that is explored in more detail later in the Blocks & Gaps section of this chapter). When asked if he saw this

situation as being connected to or related to other important situations in his life at the time, he gave this response:

Yes, it was difficult to work at home as well— since I was occasionally on the road, when I had the chance to be with [my wife], I knew I needed to take advantage of it—she needed my time.

When describing her focal situation in question 4 (a situation occurring during the doctoral program in which the respondent felt blocked in some way), Christine described a meeting with her minister in which she wanted to discuss her unhappiness in her doctoral program and her desire to leave it. While her personal relationship with her partner is not described as part of that focal situation, that topic surfaced when she asked if she saw that situation as being connected to or related to other important situations in her life at the time:

I was very sad about being away from my partner and didn't know how to share this with her. Also, my elderly cat was dying and I had trouble knowing when to have him put to sleep.

While Christine did not directly identify her personal relationships as the primary motivating factor in her decision to leave her doctoral program, it does emerge as an important—but not “blocking” issue in her decision-making.

For Patrice, the issue of past personal relationships and how they had shaped her understanding of herself and her relationships with others appears throughout her narrative. Though none of her focal situations include interactions with family members or romantic partners, she refers

to these relationships over and over again in her timeline of significant events, her description of the events leading up to her focal situations, and the situations she sees as directly related to the those focal situations.

As an example, in her introduction to her answer about the first focal situation (in which she described a meeting with the program chair and her future advisor), Patrice discussed the impact of her past relationship with her family and her ex-husband as factors influencing her decision:

There is no question that one of the reasons I wanted to go was because of lack of self-esteem. I had never done well in public school—I followed a sister who was always considered a "good girl" and a good student. I chose to have a good time (read wild!!) rather than compete. As I mentioned I had had an emotionally abusive husband by this time as well. My grades had consistently been in the A range but I still doubted myself. Anyway I decided to look for work instead. I got a job for a library vendor as a marketing person—it was a disaster. I quit in 6 months, couldn't find another job, so applied for the doctoral programme at [Canada].

She also discusses the impact of her past relationship with her husband when asked how she saw her second focal situation (an antagonistic interaction with her advisor during her studies) as related to other situations going on in her life at the time:

In a way, because I interpreted her remarks and actions as an accusation that I was stupid. This reminded me all too much of my first husband and the, now obvious, low self-esteem I had had for quite some time.

Entrepreneurial opportunities

Two of the participants in the study—Jason and Stephen—specifically mentioned the effect of emerging entrepreneurial opportunities as related situations that affected their decision-making about their doctoral studies. While this issue is related in part to the earlier theme of career instrumentality, it deserves separate consideration because of the unique nature of the current growth of the Internet, and the opportunities it has presented to those knowledgeable in the information sciences.

For Jason, the business opportunities themselves were not the trigger for his departure from the program, but they played a role in his unwillingness to accept the aspects of his doctoral program that he was concerned about—in particular, the library name and focus of the program. He acknowledged this link when asked whether there were other situations going on in his life that were related to his third focal situation—the one related to the decision to leave the program.

Yes, the growing business opportunities I had. It was hard to focus on studies in a program I didn't feel good about, when I had potential customers asking me for training.

The issue of his emerging entrepreneurial opportunities occurs throughout Jason's discussion of his focal situations, but always as a peripheral issue that affects his perception of other situations and choices. It also appears in answer to question one, which asked for a timeline of significant path-

changing events in his life. That timeline included entry into the doctoral program in 1993, the establishment of his business in 1994, and the decision to focus on the business full-time (indicating a departure from doctoral study) in 1995.

Stephen, who also left his doctoral program to pursue entrepreneurial opportunities related to the Internet, did not directly mention the business opportunities available to him in his narrative. However, like Jason, he did include his decision to abandon his studies in favor of his business in his timeline of path-changing events.

1994: Realized that I had to choose between an education that I didn't really want or perhaps need, and working in my own business in an exciting, growing industry. You know which choice I made. ;-)

Gaps & Blocks

Some of the most interesting portions of the narratives appeared in the responses about *how* the participants felt blocked or hindered in the focal situations they described. This is not surprising, given that a central tenet of the sense-making approach is that the researcher finds the quickest path to understanding the nature of the problem at hand through the study of the reported by respondents (Dervin, 1999). The blocks, hindrances, and “gaps” that the participants described are analyzed in this section.

Hesitation Out of the Gate: Early Doubts About the Program

One of the most striking aspect of the gaps described by the respondents was a consistent theme of early hesitation and doubt about the decision to begin doctoral study. Five of the seven respondents specifically mentioned early concerns that they had about their decision to pursue a doctorate, or the program that they had chosen to attend. This supports the conclusions reached by Lovitts (1996), who found that there was strong support for a relationship between doctoral persistence and what she called goal intentions: “At the time of entry, the more committed a student is to the goal of obtaining a Ph.D., the more likely the student will be to persist.” (p. 263)

When Jason was asked if he saw his decision to enter the doctoral programs as substantially different from other path-changing situations in his life,⁷ he replied:

No I don't. I accepted a less than optimal situation to bide my time while building something more important.

Reinforcing that, when asked if he saw his entry into the program as substantially *similar* to other path-changing situations he had encountered he answered:

⁷ While Jason's concerns were raised as part of his situational description, the overall sense of hesitation and concern about the right path to take overall appeared more often in the respondents' descriptions of their blocks and gaps, so these comments are included with the others in this analysis of blocks and gaps.

Yes, there have been many times in my life when I took jobs I didn't want or pursued short term paths that merely satisfied living requirements in order to get what was more important to me later.

It was clear from these responses that from the start, Jason had serious doubts about the decision to enter his doctoral program. The theme recurred in his discussion of his decision to leave the program:

It was hard to focus on studies in *a program I didn't feel good about*, [italics added] when I had potential customers asking me for training.

Stephen also voiced doubts about whether the doctoral program was the right path for him. When listing the questions that were in his mind during his first focal situation, he included his concerns about whether or not he should pursue the degree:

Do I deserve an even better deal because I've worked at [this school] so hard and so long, everyone here loves me, and *they all are encouraging me to get my PhD, even though I'm not sure myself??* [italics added]

While Stephen did not expand upon this aspect of his decision to enter the program, the hesitation and concerns about the value of the degree appear in his timeline, as well. In his entry for 1993, when he began his study, he says that he entered the Ph.D. program “because it seemed the next logical step.” In his discussion of the first focal situation, he says that he really did not even see the decision to attend as path-changing, but rather as a natural progression, one that he did not question closely. And in his timeline entry for 1994, the year that he left the program, he writes: “*I had to choose between an education that I didn't*

really want or perhaps need, [italics added] and working in my own business in an exciting, growing industry.”

Christine’s ambivalence about her doctoral study appeared in her responses to the questions about her second focal situation, which occurred a few months after entering the program, when she first considered leaving. In discussing her feelings about that situation, she commented that “Sometimes I am much clearer in my head about the direction I'm going in,” and later said “There have been times when I have made major decisions that I felt were not fully informed.”

Marshall was very clear about his misgivings regarding the doctoral program, and the extent to which he felt persuaded by faculty to follow the path into doctoral study in LIS, when asked how he felt blocked in his initial focal situation:

While I was not sure that this was the right path for me, It seemed like it would be the most do-able, all things considered, so I decided to try it. I guess I felt blocked in that, after our discussion, it didn't seem to me that I would be able to do what I really wanted to do, and so would settle for something else.

Later in his response, he said that this situation was similar to others that he had encountered:

I have before found myself faced with a degree of indecision and then persuaded in one direction or another by an influential acquaintance.

In describing her initial focal situation, an interview with both the chair of her prospective doctoral program and her anticipated advisor,

Patrice discussed early doubts that she had about her “fit” into the program, and the suitability of the woman who would be her advisor if she entered the program:

At the interview when I was trying to explain that I thought it important that librarians know what people read and especially why, she asked "why on earth would anyone want to know that?" The chair interceded by pointing out to her that collections could not be chosen if librarians didn't know what people wanted. I never forgot that interchange, but at the time I chose to ignore the feelings of misgivings that I had.

Patrice expands upon this choice to ignore her concerns rather than acting on them in her later discussion of the questions she had in her mind during that situation:

I think that I was avoiding questions - probably in a state of denial—since by questioning I would have to face up to the reality that I did not belong at the university, if any. ... I think that I already knew that the whole thing was a mistake.

Lack of Trust in the Institution

Related to the issue of early hesitation or doubt about the decision to enter the doctoral program is another theme that appeared in many of the respondents' answers: doubts about the validity and completeness of the information provided to them about the program, and/or about the truthfulness of those providing that information on behalf of the institution. Some aspect of this concern appears in the narratives of five out of the seven respondents. Subjects consistently described concerns and mistrust regarding the information they received from faculty and

administrators (and in some cases, from other students). They often believed that they were not being given complete or accurate information.

Jason, whose primary concerns upon entering his doctoral program focused on the name of the school and the degree, expressed concerns early on as to the reliability of the information he was receiving from the director of the program, someone who was actively recruiting him into the new doctoral program. The questions that Jason reported having in his mind during his interaction with the director reflected this mistrust:

The director really wants me in the program and would like to have me get a degree under him. He also needs somebody to teach technical issues half time. How do I know that he's telling the truth about this proposed name change? Is he just leading me along to get what he needs? How likely is the name change? What committees and individuals need to sign off on it? Will it really happen?

Stephen's frustration with the answers that he received from people associated with Midwest early in his consideration of the program was voiced strongly in his discussion of his first focal situation:

I remember on many occasions when considering the PhD program (and even after entering) when I tried to learn what the PhD program *really* was about, especially in terms of financial support and programmatic requirements (e.g., comps, number of courses, etc.). I asked a number of people: admissions, current faculty, current PhD students. I already knew and was friends with most of these people. No one ever seemed to give me a straight answer. It was eerie, almost like I hadn't even asked the question of them, or like they went temporarily deaf. When they did offer an answer, it was more along the lines of incomplete and confusing information. Paranoia aside, I should have been able to learn right away about what the requirements were and what they meant.

This mistrust of the answers he received from people at the program reappeared in Stephen's discussion of his second focal situation, when he attempted to get answers to questions regarding a research project he had been assigned to:

My questions were either ignored, turned around, or addressed (but not answered) in a demeaning way by some faculty. I finally got an answer in a semi-confrontational face-to-face discussion with one of the supervising faculty.

In his discussion of the questions he had in his mind during this situation, and the way he felt blocked, the issue of honesty and full disclosure from those in positions of authority emerged clearly:

I was trying to learn if the powers that were truly interested in doing research that would make the world a better place, or at least aspects of it, such as information retrieval, perform better. I wasn't quite ready to totally part with my naive *optimism...I wasn't provided with an honest answer for quite sometime, as I was asking a question that made people uncomfortable.* [italics added]

Marshall also raised the issue of trust in the context of his first focal situation, a discussion with a faculty member at West Coast about the appropriateness of the Ph.D. degree for his intended career path. One of the questions he described himself as having at that time was "Do I trust this faculty member to be giving me the best advice? Should I be talking to someone else?" When asked to expand upon this question, and explain what prompted it, he responded: "The faculty member I consulted was someone whose work and research I respected, but with whom I did not really have a personal relationship. So, the question of trust did arise in my mind."

When Patrice found herself, midway through her program, confronted with a hostile advisor, she tried to find options that would allow her to stay in the program. Some of the questions she had included whether she could change advisors midway through her program, or if there were any other way to, as she put it, “buck the system” and find a way to continue as a student. When discussing how she felt blocked at that time, she replied:

I never got a straight answer from anyone [italics added], including myself. No one would suggest alternative solutions. It was either all or nothing - quit or risk certain doctoral suicide by getting a new advisor. I thought that there should have been a third solution.

Finally, Ian also indicated some frustration with the inability to get complete and convincing answers from faculty as to whether he should remain in the Ph.D. program, taking courses that he saw as overly general and theory oriented, rather than focused on the technical skills he believed necessary for his job search:

I guess I felt blocked because I really wasn't sure what knowledge, skills, or abilities employers were looking for. *It seemed to be an informational deficit where I was getting mixed answers depending on who I asked.* [italics added] When I asked some of the faculty they had broad general responses such as "they want people who know how to think critically, write coherently, and who have strong interpersonal skills." Meanwhile I was hearing from fellow students and seeing for myself that employers seemed to be emphasizing some very specific technical skills that I didn't have.

One possible explanation for this consistent lack of trust on the part of the respondents is provided by Becker (1998) in his discussion of sociological research into institutions, particularly educational

institutions. He argues that it is both normal and expected for those in a position of authority to misrepresent aspects of their institution, particularly when they feel that their reputation or success is at stake. Becker warns budding sociological researchers to keep this tendency in mind:

The trick for dealing with the hierarchy of credibility is simple enough: *doubt everything anyone in power tells you*. Institutions always put their best foot forward in public. The people who run them, being responsible for their activities and reputations, always lie a little bit, smoothing over rough spots, hiding troubles, denying the existence of problems. What they say may be true, but social organization gives them reasons to lie. A well-socialized participant in society may believe them, but a well-socialized social scientist will suspect the worst and look for it. (p. 91)

Given that the subjects of this study were themselves social scientists in the process of being “well-socialized” through the process of graduate education, it is not surprising that they shared these concerns about the credibility of the school representatives with whom they discussed their interest in doctoral study. Giddens (1984), in fact, discusses the way in which such a reflexive process affects any type of social research: “Reflections on social processes (theories, and observations about them) continually enter into, become disentangled with and re-enter the universe of events they describe (p. xxxiii).”

Lack of Information About the Doctoral Process

Four of the seven respondents reported being blocked from obtaining information relevant to their program’s requirements and the doctoral

process overall; while similar to the issues of mistrust described above, these were more concrete concerns, voiced about the difficulty in obtaining answers to straightforward questions. In these cases, the respondents voiced frustration with bureaucratic roadblocks or inherent problems with the organization of the degree program, as opposed to concerns about the truthfulness or reliability of those answering their questions.

This difficulty related to obtaining information about program requirements is not unique to LIS, however. Other attrition researchers have found this to be a commonly cited issue among doctoral students in other degree programs. Kerlin (1997), in a section of her conclusions entitled “Department Policies and Practices, or, *What You Don’t Ask, They Won’t Tell You*,” described how this problem affected the women doctoral students she had interviewed:

A number of factors related to departmental policies and practices sometimes had the effect of leaving the women in the dark and uninformed about various aspects of their programs. Most often these factors centered around admission practices, program requirements and/or expectations and candidacy exams. ... For some kinds of tasks such as preparing oral presentations or learning how to write and submit papers to refereed journals, no formal instruction was provided. In its absence the women sought help from their advisors or other committee members or, worse, they were left to discover these things on their own.

The frustrations with information-gathering expressed by the participants in this study varied in terms of their causes. Not surprisingly, Jason’s difficulty in obtaining information about his program focused not

on the specific program requirements, but rather on the chances of the school's name change being approved. When asked how he felt blocked, he responded with a discussion of both the institutional bureaucracy, and his limited access to information about organizational processes:

“...large organizations make it difficult for any one person to know how things will turn out. ... What prevented me from getting an answer is the fact that one man, the director was my only input into this process. . . I didn't know the other people who were responsible.

Marshall was also frustrated by the institutional bureaucracy at his institution. When describing his third focal situation, which occurred after he had decided to leave the doctoral program, and was attempting to receive an advanced certificate for the coursework he had completed, he discussed this problem:

It was very difficult to determine which forms were required and which office on campus was responsible for the filing. It took several trips to campus and visits back and forth to several offices to finally resolve the situation. ...

While Marshall seemed to take this roadblock in stride, saying “There always seems to be paper work and arcane bureaucracy associated with nearly every significant event in a person's life,” the fact that he marked this as one of the key situations associated with his doctoral experience indicates just how frustrating an experience it was, and how much it affected his retrospective view of the program.

In addition to this frustration with the institutional bureaucracy, however, Marshall also discussed the difficulties he encountered in getting

information about his program requirements. In his discussion of his second focal situation, he listed a number of programmatic questions that were in his mind:

Would I be able to pass the preliminary exam when the time came?
Would I ever feel ready to take the preliminary exam?
Had the courses I'd taken to date actually prepared me to write a dissertation?
When would I be able to find the time to write a dissertation within the schedule I had developed?

In his later discussion of those questions, and the way in which he felt blocked or hindered, he elaborated on this frustration:

I was trying to find out if I had prepared for the exams appropriately through relevant course work and independent study. ... I was blocked by the fear of not being ready, of not having taken the necessary steps to master the literature. I didn't have a clear understanding of what was required to become proficient. If I had had the answer, I might have known whether to take the exam as proposed or delay.

Those mentions of fear and lack of clear understanding echo the findings by Kerlin in her exploration of the doctoral experience.

Stephen was particularly detailed in his description of the problems he had getting information about the program. As described in the earlier section on mistrust, he felt that it was difficult or impossible to get clear and direct answers from program representatives about basic issues ranging from financial support to programmatic requirements. His frustration with this lack of information was clear:

I was not provided with information that I was entitled to, and without which I had the right (and almost obligation) to decide *not* to enroll in the program.

Like Marshall, Stephen had a long list of questions related to the program for which he had difficulty getting answers:

What are comprehensive exams, and do I need to take them? If so, when? Ditto for orals. What about financial support? Is there a minimum that I am entitled to...? Will I get an office? What will my responsibilities to the School be? Will I teach, and if so, will it be my own courses or someone else's? Ditto for research.

For many of these questions, particularly those related to program requirements like exams, he was unable to obtain the information he was seeking. He saw this block as a result of “lack of clarity in the School's policies regarding this issue, or the fact that these folks weren't sure themselves.” While Stephen enrolled in the program despite the lack of information he received, the frustration associated with this information-gathering process added to his early sense of hesitation and uncertainty about the appropriateness of this path for himself.

Stephen also encountered difficulties in getting information about the research project he had been assigned to, noting that his questions about the project were repeatedly ignored or deflected by the faculty responsible for the project. It was clear throughout his narrative that this theme of difficulty in obtaining information—and a need for him to be persistent or even antagonistic in order to get answers to his questions—was an important part of his memories of the doctoral program.

Perhaps the clearest articulation of the frustration with lack of information on program requirements came from Maya, whose second

focal situation dealt almost entirely with the difficulty in getting answers to questions related to her dissertation proposal:

After passing the qualifying exams in the Spring of 1990 like every other Ph.D. student I had to begin my proposal. I had a hard time identifying what was required of the proposal, how should it be structured, what should it cover. There are no guidelines so I read other proposals done by other students but I did not feel that I really understood what was required.

When asked how she saw that situation as different from other situations in her life, she responded by comparing this experience to her substantial experience in industry:

I think this situation was different in that when I had a task to carry out in a business environment I was either given some guidance on how it was to be done or could ask for clarification and generally got clear direction. As a student trying to figure out the proposal process, I felt I could not get clear definition of what I needed to do. I would submit something, my adviser would read and comment that it was not quite right because— Then I would go off and try a different tack; and this iterative process was very frustrating. I realized that this was a method of trying to get me to think through the issues for myself but don't know that it is productive. I guess my question would be, " why can't you give me clear guidelines of what you want me to do to satisfy the requirements for the proposal." "Why do I have to go through so much wheel spinning?"

In discussing how she felt blocked in her attempts to get information about the process of writing a proposal and having it approved, she continued to describe her frustration with the lack of information related to the proposal writing process:

I did feel blocked in trying to get the answer about clear guidelines. I wanted the "cookbook" so I could start moving along in the process. However, there was none. ... I felt that a lot of unproductive time was spent. I wanted more direct guidance on what was acceptable and what wasn't. My sense is that this is part of the "admission to the

world of academics" and could be short circuited so that one could move through the process much more rapidly. I realize that by attempting a qualitative dissertation I was setting myself up for this kind of slow process. There were times when I thought I would have been better off to just count something and get the dissertation over with.

Her statement about the inherent difficulties of qualitative research as opposed to quantitative or statistical research echo themes that occur throughout the literature on doctoral attrition. Multiple studies (Bowen & Rudenstine, 1992; Germeroth, 1990; Golde, 1996; Nerad & Cerny, 1993) have shown that students in fields with highly structured methodological approaches—particularly in the so-called “hard” sciences—have shorter time-to-completion and less student frustration related to unclear requirements and guidelines

Problems With Advisors

Another frequently-cited source of blocks, gaps, or hindrances described by these respondents was difficulties related to their relationship with their advisors. Many popular guidebooks for doctoral students (Peters, 1997; Sternberg, 1981) emphasize the importance of the choice of advisor for successful completion of the Ph.D. This anecdotal advice is supported by the research of Germeroth (1990), Golde, (1996), Katz (1997), and Kerlin (1997), all of whom found that a positive relationship with the advisor was strongly correlated with doctoral persistence.

The clearest evidence of a relationship between the student-advisor relationship and attrition came in Patrice's narrative, which focused almost exclusively on the difficulties she encountered with her advisor. Her second focal situation included a description of the deteriorating relationship:

During the fall of 1989, I began to get borderline abuse from my advisor. She felt that my work was not good enough and accused me of being inadequate for a doctorate. As I mentioned earlier, I had had a fairly serious accident when I first began (April '88) so my work was indeed lacking. When I requested help from her, ie, practical suggestions on what to do, as well as more rope to explore the issues I wanted to, she refused. By the end of the year, she wrote me a memo saying that she did not think that I ever had a chance of succeeding and that she did not want to be associated with me and therefore I should find someone else!!

While Patrice explored options for changing advisors when it became clear that her advisor was openly hostile towards her, she found herself completely blocked:

This was an impossible situation - there was no one else in the faculty who would be remotely appropriate, plus, the political implications were such that I knew I was doomed. No one would be willing to take me on. ... No one would suggest alternative solutions. It was either all or nothing - quit or risk certain doctoral suicide by getting a new advisor.

Patrice's experiences mirrored those of many women interviewed in other attrition studies. In her conclusions, Golde (1996) found that "some students found themselves in very difficult situations, relating to ... injurious treatment by their advisor. Often students believed that they had no recourse within the university," which describes Patrice's situation

quite accurately. Kerlin (1997) also found that power imbalances and lack of recourse for students at odds with their advisors were important factors in women's attrition decisions:

Without appropriate institutional structures or systems of accountability to protect students who face these kinds of circumstances the advisor/advisee relationship rests solely and squarely on trust alone. When this trust is violated students often have little recourse but to leave their programs or to submit and remain silent.

While none of the other participants described their relationships with their advisors as negatively as Patrice, a number of them mentioned issues related to problems with their advisors, or with their committees, as important aspects of their programs. Christine's second focal situation revolved around her decision to try to change advisors, and the potential effect of that decision on her status among her peers, although her discussion of that situation quickly turned to the personal issues that were peripherally affecting her decision. Marshall had his committee completely turn over during his time at West Coast, with two of the three members being denied tenure, and the third becoming acting dean of the college. Stephen's conflicts were with the faculty directing the research project he was working on, but the effects of that conflict spilled over into his perception of and trust in the faculty as a whole. And none of the respondents described their advisors as having played any significant role in bridging gaps that they encountered, which speaks to the limited support role that their advisors played for them.

The Missing Gap: Clarity in the Attrition Decision

A striking aspect of the survey responses came in the discussion of the third focal situation, in which participants were asked to describe a situation after their decision to leave the program in which they felt blocked or hindered in some way. In a number of cases, respondents declined to answer this question at all, saying that once they had made the decision to leave, their path was clear, and they did not feel blocked in any way that they could recall. Many of the responses to the third question, in which they were asked to describe that situation, were strikingly similar:

I'm not sure I can remember any such block **after** I'd made my decision to leave. Everything seemed so obvious and crystal clear to me by then. And nothing really comes to mind about what happened **during** my decision making process. At that point, the information I needed had to come from within, and not from the School.

—Stephen

I didn't see myself as blocked. I went to a friend...and asked her what she thought the career consequences would be. She said they would be nil which confirmed my view as well so I was able to get the information to answer my question.

—Maya

Once I came to the realization that there was nothing that I could do, ie., find another advisor without alienating everyone, there was no one or nothing in my way to quitting. So, I cannot say that I was blocked.

—Patrice

I thought about this question for quite a while. I think I can honestly say that it hasn't happened. It might seem real strange but absolutely none of the faculty that I talked to encouraged me to stay in the program. The comments from them tended to be along the lines of "well, you have to really want to do this—" Some of my fellow students were upset that I wasn't going to be pursuing the doctorate

but their comments were more along the lines of "I'm putting up with this so why don't you?" rather than for any solid reason. This probably says a lot more about my program than anything else—Once I made my decision to leave the program I didn't feel blocked, frustrated, or hindered in any way.

—Ian

These answers highlight the effectiveness of Dervin's suggested indirect approach to the choice of focal situations—had they been asked only about their decisions to enter and leave the doctoral program, these respondents would have provided far less information about their experiences than they did with the addition of the mid-program focal situation. The value of retaining the last question, however, is that we can see how easily these students made the transition out of the program; the decision to leave provided them with a clear, unblocked path.

Bridging the Gap

The third component of the sense-making triangle is referred to as bridges or helps. The word help may be more effective as a descriptor, because it does not assume that respondents necessarily *bridged* the gap (many routed around it, or simply ignored it). There was a good deal of variation in the methods that the respondents employed to make sense of the gaps they encountered in the situations they described. Some themes and similarities did arise in their narratives, however, and are discussed here.

Internal vs. External Influences

In most of the respondents' narratives, the information uses they mentioned as being most important when confronting sense-making gaps did not come from other people or from their doctoral institution. Instead, they described their decision-making as being based on their independent observations and experiences, rather than from answers or assistance provided by others. Jason, for example, finally dealt with his gap of uncertainty about the degree program by making the decision to leave, despite his failure to get a satisfactory answer to his question about the school's name change. Stephen bridged his gap of uncertainty by realizing through observations that his concerns about the program were true; he could "see for himself" what the answers to his questions were. Christine made her decision to leave the doctoral program at Midwest based on her realization that her desire to return home to her partner and familiar surroundings was the most important thing for her—an answer that could only come from her own understanding of her needs, rather than from those around her.

Marshall was particularly clear about his need to address the gaps he encountered through his own understanding and observations of his situation. When asked what prevented him from getting an answer to his question of whether or not the doctoral program would be worth his investment of time and effort, he replied "I think the answer was only

answerable after I started the program and began delving into some of the subject material.” And Ian, too, made his decision to leave based on his growing realization that he was more interested in practical applications of library and information technology than he was in the theoretical aspects of the discipline—once again, relying on his own sense of what he needed, rather than answers provided by outside sources. This finding supports earlier research by Dervin and others (1983) that

Answers came internally as well as externally. So-called “subjective” questions were as prevalent as so-called objective ones. Information was needed for situations without resolutions as well as for situations with resolutions. Most questions related to self or others rather than merely “fact-finding” independent of people.

Overall, these responses indicated a high level of confidence in the respondents’ own decision-making abilities; when faced with a gap, they turned more often to their own perceptions and assessments than to the advice of others. This evidence of strong independence on the part of the students differs somewhat from the findings of other attrition researchers, who have found a high level of dependence upon advisors and faculty members—as well as friends and family—in the decision-making related to doctoral study (Benkin, 1984; Golde, 1996; Jacks et al., 1983; Kerlin, 1997; Lovitts, 1996; Nerad & Cerny, 1993).

Bridging the Gap by Ignoring or Postponing Sense-Making

Several of the respondents, when asked how they had found answers to the questions in which they felt blocked said that they had not found

answers, but that they had forged ahead nonetheless. Jason, for example, knew that he did not want to complete a Ph.D. in the field of library science, and was blocked by his inability to determine whether or not a name change for the school would be approved by the institution. However, he entered and remained in the program despite this indecision, seeing it as a short-term solution until he had more information about the future of the program—and his growing business.

Christine felt blocked when she tried to determine whether the students in the programs she was considering were “happy”—a subjective assessment, but one that was important in her decision-making process. She decided against one program because the students looked “worn-out and grumpy,” but felt that she had only a partial answer to this question at the program she ultimately selected. When asked how she felt the answer to this questions would have helped her, she said that for her, the information was vital. Even without a full answer to this question, however, she chose to begin the program.

Marshall expressed early concerns about whether or not the LIS doctorate was the right path for him, and felt blocked from getting a complete answer to this question—although he described this block as being primarily based in his own knowledge of himself, rather than in external forces. When asked how he felt an answer would have helped him in this process, Marshall replied “I'm not sure the question was answerable

at the time, but had I known, I would have been less indecisive and perhaps more direct in my actions.” Even with this indecision, Marshall chose to move forward into the program, putting his doubts and hesitation on hold.

Persistence and Tenaciousness

Three of the respondents discussed their need to be persistent or tenacious in their pursuit of information and answers to questions in blocked situations. Stephen mentioned this in both his first and his second focal situations. When he encountered difficulty in obtaining information about program requirements—his first focal situation—he said he got the answers to several of his questions “by being persistent and asking on more than one occasion.” This idea of persistence as a bridge across an information gap appears even more strongly in his responses related to the second focal situation, in which he was trying to get answers from faculty regarding the research project he was working on:

On the project's mailing list, I repeatedly asked what real-life applications of the project would be, and why we were ignoring much of what the information retrieval literature already seemed to have established. My questions were either ignored, turned around, or addressed (but not answered) in a demeaning way by some faculty. ... I had to be pretty tenacious in terms of getting the information I needed, and I had stick to my guns in the face of discouragement.

Marshall described his efforts to get a certificate at the end of his participation in the doctoral program as particularly frustrating, and as

requiring significant persistence on his part in order to resolve. When asked how he got the answer to his questions about the paperwork for the certificate, he replied “By being persistent, making several trips to campus, and going back and forth from building to building and campus department to campus department (or so it seemed).”

Maya also described a frustrating situation in which she had to be persistent to get an answer to her questions about developing a dissertation proposal. While she acknowledged that the iterative nature of that process was there as an intentional part of the learning process, she saw this need to repeatedly consult her advisor about the proposal as it was developed as an unnecessary block in the doctoral process:

As a student trying to figure out the proposal process, I felt I could not get clear definition of what I needed to do. I would submit something, my adviser would read and comment that it was not quite right because— Then I would go off and try a different tack; and this iterative process was very frustrating. I realized that this was a method of trying to get me to think through the issues for myself but don't know that it is productive. I guess my question would be, " why can't you give me clear guidelines of what you want me to do to satisfy the requirements for the proposal." "Why do I have to go through so much wheel spinning?"

Faculty Persuasion

In several cases, concerns or information gaps perceived as blocks by the student were bridged through persuasion by faculty members or administrators. This happened often in the cases where respondents had expressed concerns about the suitability of the degree program they were

considering. Despite his misgivings about the doctoral program at Southeast A, Jason entered the program because of the director's assurances that a name change was imminent:

The director really wants me in the program and would like to have me get a degree under him. He also needs somebody to teach technical issues half time. How do I know that he's telling the truth about this proposed name change? Is he just leading me along to get what he needs?

Stephen was also persuaded by faculty to ignore his doubts about entering the doctoral program at Midwest, as indicated in one of his questions related to the first focal situation:

Do I deserve an even better deal because I've worked at [Midwest] so hard and so long, everyone here loves me, and they are all encouraging me to get my PhD, even though I'm not sure myself?

Marshall was very clear about the role that faculty persuasion played in his decision to begin his doctorate at West Coast. His description of the first focal situation focused on that persuasion:

Until that time, I had been interested in pursuing an MBA in management (or something) and had been hoping to find a professional program at [West Coast] that would be inexpensive and do-able within the context of my personal life. My faculty "mentor" tried (and ultimately succeeded) to convince me to apply to the [LIS program] and design my own doctoral program within the context of the [program] and related [West Coast] graduate curricula. While I was not sure that this was the right path for me, It seemed like it would be the most do-able, all things considered, so I decided to try it. I guess I felt blocked in that, after our discussion, it didn't seem that I would be able to do what I really wanted to do, and so would settle for something else.

When asked how this situation was similar to others he had encountered, he replied "I have before found myself faced with a degree of indecision and

then been persuaded in one direction or another by an influential acquaintance.”

The theme of persuasion also appeared peripherally in Ian’s narrative, when he discussed the doubts he was beginning to have regarding the value of the degree in the context of his career plans.

When I initially entered the program I was content to believe that there would be numerous career opportunities for someone with a Ph.D. in LIS; especially since I wanted to stay in higher education. Peers on campus and my own boss (an associate dean) were encouraging, usually making comments about how marketable I would be once I got my Ph.D.

While all four of the men in this study mentioned persuasion on the part of faculty to get them to enroll in their programs, none of the three women interviewed mentioned this as a part of their experiences. It is possible that in the female-dominated profession of LIS, academic programs work harder to recruit male students. The nature of this exploratory research and its small sample size make it difficult to assert any specific relationship between the factor of faculty persuasion and the gender of the student—however, this is a topic worth exploring in any research that follows up on this theory-building process.

Outcomes

The last aspect of the sense-making model to be examined sits “outside the triangle.” It is the nature of the outcomes of the sense-making process: once the subject has made sense of the gap—by bridging it, routing

around it, or simply ignoring it—how do they characterize the resulting outcome of the situation? While this aspect of the sense-making model is closely related to that of helpful and hurtful uses, it focuses more specifically on the results of the information uses, rather than the uses themselves. The interview questions focusing on this aspect occur at the end of each discussion of the focal situations, when the respondent is asked to describe how the answers to the questions they had in their minds helped or hurt them (or, if they did not receive an answer, how they felt an answer might have helped or hurt them).

Of particular importance in this section is the differentiation between the institutional (“system”) perspective on the outcomes, and the respondents’ perspectives. In some cases, outcomes that might be perceived by the institution as positive are seen by the student as negative. One example is the lack of clarity in guidelines for many aspects of developing and writing dissertations in the humanities and many of the social sciences. While the institution may characterize this lack of clear guidelines as part of the learning process by which a student becomes a bona fide researcher, the respondents in this study were more likely to characterize it as a negative and frustrating outcome. It is also possible for the institution to classify an outcome as negative—as in the case of the attrition decision—when the student sees that same decision as a positive

outcome, a theme that is described in more detail in this chapter in the section on positive outcomes.

Negative Outcomes

The respondents described a variety of negative outcomes to their focal situations. These negative outcomes appeared more often in the first focal situation (where the respondents discussed their decision to enter a doctoral program), and in the second focal situation (where they discussed a difficult situation during the program), rather than in the third situation (where they discussed their decision to leave their doctoral program).

Negative outcomes related to lack of information

When respondents were unable to find answers to their questions, they typically characterized the outcomes of their situations in negative terms. The lack of information was, in Dervin's terms, "hurtful" rather than helpful. When they were unable to get answers to their questions, or to receive the assistance they sought, the result was that they ignored or avoided the sense-making gap rather than bridging it. The outcome of this postponement was often viewed in negative terms, with the respondents feeling that receiving answers earlier would have saved them time and energy.

When asked whether an answer to his questions about the doctoral program would have helped him in his first focal situation, Stephen

replied: "It didn't really make a difference; I enrolled anyway. But I was frustrated nonetheless." This frustration was a negative outcome of a key sense-making situation for Stephen, and did little to allay his early concerns about his decision to enter the doctoral program.

Jason saw his difficulty in getting an answer to his question about the school's name change as having a negative outcome. In his discussion of the outcome in the first focal situation, he said "The bureaucracy kept me from knowing the answer. ... [T]he answer would have helped because it would have told me whether I should focus on my studies or my business." This was repeated in his discussion of the outcome in the second focal situation:

I was prevented from getting an answer by the fact that I didn't know enough of the principles in the decision making process. If I'd known that the name change was not going through for certain, I could have focused more of my energies on my business.

As a result of the difficulty in finding an answer to his question, Jason felt that he delayed longer than he would have liked in beginning his entrepreneurial venture.

Patrice, more than any of the respondents, saw the outcomes of her focal situations as having strongly negative outcomes. Much of this negative characterization came from her inability to get answers or assistance from anyone in her doctoral program when she encountered problems with her advisor:

My answer was clearly not to fight but to give up. There was no other practical answer—it was a losing battle. Whether that answer has helped me is something I still do not know. I know that I had no choice but there is still a lot of resentment. ... I never got a straight answer from anyone, including myself. No one would suggest alternative solutions. It was either all or nothing - quit or risk certain doctoral suicide by getting a new advisor. I thought that there should have been a third solution.

Negative outcomes related to programmatic issues

In their second focal situations, both Marshall and Maya described problems they encountered when seeking information about program requirements and milestones. Asked whether he had received answers to his questions, and how those answers might have helped him, Marshall replied:

No. I felt discouraged from answering the fundamental question and encouraged to just take the exam and see where things stood. Had I been able to answer the fundamental question, I could perhaps have saved some anguish and time.

Maya expressed unhappiness with the lack of clear guidance and information she received during the doctoral process. When asked how she was helped or hurt by the lack of answers she received about the dissertation proposal process, she described her resulting frustration:

I felt that a lot of unproductive time was spent. I wanted more direct guidance on what was acceptable and what wasn't. My sense is that this is part of the "admission to the world of academics" and could be short circuited so that one could move through the process much more rapidly. I realize that by attempting a qualitative dissertation I was setting myself up for this kind of slow process. There were times when I thought I would have been better off to just count something and get the dissertation over with.

Jason and Stephen described negative outcomes in their second focal situations—both of which were related to their assistantship responsibilities in the doctoral program. Jason found himself working more hours in his assistantship than he had expected, which made it difficult for him to focus on his studies. He felt isolated and unsupported, as illustrated in this response:

I've never been in such a vacuum before where there really was nobody else to take care of things. . . I was the only one with the answers and it seemed wrong to deny those answers to those that needed them just because I was working on something.

Stephen's negative outcome related to his assistantship experience was focused less on the burdens it placed on his time, and more on the characteristics of the program that were revealed to him through his participation in a departmental research project. When asked how the answers he received to his questions about the project had helped him, Stephen replied: "It showed me that the politics of a PhD program were as bad as anywhere else, and made me realize that I, not these faculty, should control my destiny." Like many of the outcomes described by the participants, however, this could be characterized as either negative (focused on his unhappiness with the internal politics of the department), or positive (focused on his realization that he could take control of his own path).

Positive Outcomes

Not all situational outcomes were characterized by the respondents as negative. In many cases, in fact, the outcomes were seen by the respondents as positive—even when they resulted from the same problematic situations (lack of information, external pressures, personal issues) that led to the negative outcomes already described.

The most surprising aspect of the responses received was the nearly unanimous view that the outcome of the decision to leave the doctoral program was positive rather than negative. It is here that the shift in research focus from the institutional perspective to the student perspective becomes most significant. Traditional, institution-focused research into attrition begins with the assumption that attrition is a problem. As discussed in Chapter One, from an institutional perspective that assumption is correct—increasing shortages in qualified LIS faculty, and the lost investment in financial support that the institution incurs as a result of high attrition rates are among the factors that make this a problem for the institution. But when viewed from the student's perspective, it appears that attrition in LIS is not always a negative outcome for the student.

As discussed earlier in this chapter, both Jason and Stephen abandoned their doctoral study in favor of Internet-related entrepreneurial activities. Both described this choice in positive terms,

seeing the business opportunities as more attractive and enjoyable than the academic work they had left:

I had to choose between an education that I didn't really want or perhaps need, and working in my own business in an exciting, growing industry. You know which choice I made. ;-)
—Stephen

Yes, the growing business opportunities I had. It was hard to focus on studies in a program I didn't feel good about, when I had potential customers asking me for training.
—Jason

Similarly, Ian chose to end his doctoral studies with the completion of his master's degree, believing that the opportunities available in an increasingly technological environment required practical skills rather than the research skills that the doctoral program emphasized. He, too, saw this departure as a positive rather than negative outcome:

I actually took a few more classes than I really wanted in the doctoral program to see whether I would feel a strong calling towards some research project or issue. Surprisingly, I found myself drawn more and more to the practical side. I enjoyed learning about new technologies, mastering them, and moving on. So, ironically, the more doctoral seminar courses I took, the more I realized that I enjoyed the more applied side much better. It certainly taught me respect for what the Ph.D. students were doing but I just didn't feel that what was being done was that important. I just didn't feel a sense of community of belonging.

Maya and Marshall also characterized their decisions to leave their doctoral programs in positive rather than negative terms. Like Ian, their decisions were primarily related to their perception of the career value of the doctoral degree. Unlike Ian, however, their concerns were not related to the growing influence of applied technology on the profession.

I finally decided that I would not have the time to devote to doctoral studies within the framework (expectations) established by my graduate advisors. The passage of time allowed me to find the answer, which finally allowed me to move on to other pursuits.

—Marshall

In the long run the Ph.D. makes no difference to my career as I have left the idea of academia behind (I will adjunct for schools but have no desire to go to a tenured position based on my seeing what is required for it and what the rewards are). ... As a comment, I do not have any ego tied up in failure. I can rationalize anything and I am very happy with my decision. It has freed me to do other things which I think are a better use of my time.

—Maya

Of the respondents in this study, only Patrice described her decision to leave the doctoral program in negative terms:

I felt very much alone on the proverbial creek. ... I felt overwhelmed by the whole thing. I think that when I asked myself that question I was actually seeking permission to give up, to be a "quitter yet again". But since issues of principle are extremely important to me, I was also questioning whether I had the wherewithall to take on the whole system!!!... My answer was clearly not to fight but to give up. There was no other practical answer. . .it was a losing battle. Whether that answer has helped me is something I still do not know. I know that I had no choice but there is still a lot of resentment.

Even Christine, who raised the issue of feeling shame related to her decision to leave, later described her strongest feeling after leaving the program as relief, saying "I've never been as happy about driving anywhere as I was on the drive back home from Midwest."

These findings differ sharply from those of other attrition researchers, many of whom have found that students leave their programs of study with strong feelings of resentment and bitterness (Golde, 1996; Kerlin, 1997; Lovitts, 1996). Kerlin found that "words like

'loneliness,' 'isolation,' 'exhaustion,' 'stress,' 'anxiety,' 'hazing,' 'ridicule,' 'sexual harassment,' 'benign neglect' and even 'abuse' [were] central to women's descriptions of their doctoral experiences." The emotions that Lovitts found among the noncompleters in her study included disappointment, depression, feeling of failure/inadequacy, embarrassment, discomfort, decreased self-esteem/self-confidence, being upset, feeling bitter/crushed, relief, and feeling good—two positive emotions, and eight negative. In her discussion of negative emotions, Lovitts reported significant negative outcomes for the respondents in her study:

The decision to leave can have long-term effects on students' emotional well-being. Of the nine students who talked about the duration of their emotions, eight dealt with them for over a year, and a few have been left permanently scarred; two cried during the interview. Only Tom, who started but did not finish his dissertation and was working in business at the time he left, indicated that he got over his feelings of failure relatively quickly because, for him, it was not particularly a failure, it was just something he did not end up doing, and he feels that he has had a successful career. (p. 244)

One explanation for the difference between the results of this research and those of other attrition researchers can be found in Lovitts' analysis of the relationship between level of commitment to the program and the Ph.D., and the emotions felt upon leaving the program. Her analysis showed that both level of commitment and Ph.D. intentions were both positively correlated with negative emotions upon departure from the program. Given the finding in this study that the respondents often

entered their LIS doctoral programs with concerns about the appropriateness of their choice and with low expressed levels of commitment to the degree program, the discovery of positive rather than negative emotions being expressed by the respondents in this study is not inconsistent with the results reported by other attrition researchers.

CHAPTER SIX: CONCLUSIONS

“But from now on I’m going to have a very good reason before I make up my mind about anything. You can lose too much time jumping to Conclusions.”

—Juster (1961)

In this chapter, the results of the research are presented in the context of the primary research question: What factors appear to be most influential in the decision of LIS doctoral students to leave their programs before completion of their degrees? This summary and analysis of the research results is followed by a discussion of the implications of this study for doctoral programs and students in LIS. The subsidiary research questions, both of which addressed methodological aspects of the research—the use of Dervin’s sense-making methodology for attrition research, and the use of electronic mail in the sense-making interview process—are then discussed in the section on methodological contributions. Finally, the chapter concludes with suggestions for researchers who wish to build upon this preliminary exploration of LIS doctoral attrition.

Factors Influencing LIS Attrition Decisions

The primary purpose of this inquiry was to identify factors that appear to be influential in the decision of LIS doctoral students to leave their programs before completion of their degrees. The results of the research support the conclusions of other attrition researchers, but also build upon those existing models of attrition by identifying factors that have not previously been identified or discussed. Given that other attrition researchers studying multiple disciplines have found significant variation in attrition factors based on disciplinary or departmental affiliation (Bowen & Rudenstine, 1992; Golde, 1996; Lovitts, 1996; Nerad & Cerny, 1993), the discovery of factors that did not appear in multidisciplinary attrition models was an anticipated outcome of this research.⁸

In many ways, the experiences of the students in this study were reflected in the models of attrition developed by other researchers, in particular those aspects of attrition models that appear to cross departmental and disciplinary boundaries. The similarities between these findings and the existing models served as an indicator that the methodology used was in fact well-suited to the nature of this research,

⁸ Golde (1996) points out that there is a distinction to be drawn between multi-departmental studies at a single institution and multi-disciplinary studies covering multiple institutions. The former, which includes her own research, is more difficult to generalize from because it can be difficult to determine whether the factors identified are unique to that institution's department or are typical throughout the discipline.

since it revealed the same factors that other in-depth studies had shown to be important in the context of attrition.

The factors identified in other attrition models (Golde, 1996; Kerlin, 1997; Nerad & Cerny, 1993) have been broken down into two primary categories—those related to personal situations and characteristics, and those related to departmental and/or disciplinary situations and characteristics. Similarities to the findings in those studies are discussed below, and are followed by factors identified in this research that did not appear in previous attrition studies.

Personal Issues Consistent with Existing Research

Personal issues in this context are defined as those issues that are specific to the individual student's situation or perceptions, and are not directly controlled or influenced by the student's department, discipline, or institution. These issues are important in understanding the doctoral student experience, but because of the "systems" orientation of most attrition research, are often given short shrift in analyses. Nerad and Cerny (1993), for example, devote only one paragraph to personal issues, as compared to the many pages of institutional reasons that make up their model of attrition. Golde (1996) focuses only on departmental factors affecting attrition, acknowledging that her research deliberately excludes from consideration personal issues that are unrelated to the academic department. Only Kerlin (1997) and Lovitts (1996)) specifically explore

and discuss the influence of personal factors on attrition decisions, and the similarities between their findings and those of this research are discussed below.

Commitment to program

Of considerable importance in the results of this study was the discovery that almost all of the respondents entered their doctoral programs without a firm commitment to completing their degrees. This finding was consistent with what Lovitts found in her research results; one of her hypotheses, that “at the time of entry, the more committed a student is to the goal of obtaining a Ph.D., the more likely the student will be to persist,” was supported by her results. While the relationship between commitment and persistence may seem obvious, it is worth noting that a similar hypothesis in Lovitts’ research, that “the more committed a student is to his/her goals for pursuing graduate education, the more likely he/she will be to persist,” was not found to be supported by her results. It appears that a student’s perceived value of the Ph.D. degree itself, both at entry and during their studies, was one of the most important factors in their attrition decision.

One of the most interesting findings in this study was the fact that all of the respondents expressed some level of doubt, hesitation, or concern about entering the doctoral program as a part of their first focal experience. While Lovitts’ results show a correlation between commitment

to program and likelihood of completion, her results do not show this lack of commitment as being present in all of her respondents, as this study did. Nor did other attrition researchers using qualitative interviewing techniques (e.g. Golde, 1996 and Kerlin, 1997) discover such widespread hesitation and doubt upon entry to doctoral study

Job opportunities

Closely related to the issue of commitment to the pursuit of the degree is what Bodian (1987) called “career instrumentality”—that is, the degree to which the student sees the degree as instrumental to his or her job prospects. Bodian found a strong negative correlation between career instrumentality and attrition intent, a relationship that was evident in this study, both in the respondents’ discussions of their decision to enter doctoral study, and in their decisions to leave their programs. Jason, Stephen, and Ian all mentioned employment or entrepreneurial opportunities in information technology that were available to them and did not require a doctoral degree. Maya carefully researched job opportunities in the field before entering the program at Northeast, but eventually found that the doctoral degree was not necessary for her to fulfill her interest in working with students. Of particular interest in this context was the fact that only Maya specifically mentioned any interest in teaching on the university level, which is the one career path most likely to require the Ph.D.

Several other researchers have touched upon the issue of the job market in specific fields, and how it affects graduate attrition. Nerad and Cerny (1993) offer perhaps the most relevant discussion of this phenomenon:

Students, particularly in the professional schools and engineering who already had their master's degree, rethought their career goals and chose to leave, often after the first year. These students could return to well-paying jobs as an alternative to jumping the many hurdles in graduate school. (p. 31)

This closely mirrors the descriptions given by respondents like Stephen and Maya; Stephen left after his first year for a well-paying entrepreneurial activity, and Maya left after deciding that the rewards of a career teaching in LIS did not compensate for the low pay in the field, and many hurdles associated with the doctoral program.

Interpersonal relationships

As noted earlier, few attrition researchers have considered personal issues as an in-depth part of their research. Only Kerlin (1997) considered personal issues to be a key part of the doctoral persistence model, saying in her conclusions that interpersonal relationships constituted the most important factor related to attrition for the women she had studied:

Much of what the women described related not to the substantive areas of their research but to the changing nature of their self-concepts, their identities and the relationships they had with others. ... Through the women's descriptions of the complex interaction of personal, social and institutional factors that influenced their progress, the construct of relationship—relationship with self and other—emerged as central to understanding the meaning these women attached to their doctoral experiences.

Organizational Issues Consistent with Existing Research

In contrast to the personal issues described above, which are not within the control of the department or institution, a number of factors were identified that are directly related to departmental, disciplinary, or institutional characteristics. These factors are of particular importance in shaping any actions taken based on these research results, since they offer guidance for departments and institutions that hope to improve graduate retention.

Self-reliance and institutional integration

One of the factors that stood out in these results was the extent to which the respondents relied primarily on their own observations and information when making the decision to leave their doctoral programs, rather than coming to that decision as part of a collaborative process with faculty or students in the program. At first, this aspect of their attrition decision appeared to be a personal issue, and did not seem to be noted in the existing attrition research. However, after closer analysis of Lovitts' (1996) results, it became clear that her discussion of what she calls "integration into the academic community"—departmental and disciplinary—was closely related to this issue of self-reliance:

[A] student who is given opportunities to integrate into the department's academic community is more likely to complete than a student who must rely on his or her own resources and ingenuity to become integrated. (p. 275)

This perspective puts the issue of self-reliance into a different context; the fact that these subjects made their decisions primarily in isolation can be seen as much as a result of the department's failure to integrate them into the academic community as it is an individual decision-making characteristic.

Completion of master's degree before entry to doctoral study

As noted above in the discussion of the job market and its effect on students' decisions to leave graduate study, Nerad and Cerny (1993) found that students in professional schools, who often entered doctoral study with master's degrees in hand, were more likely to leave their doctoral programs for high-paying jobs. They also found that students entering doctoral study having already earned a master's degree took significantly longer to finish their degrees. This is important in the context of this research, since LIS doctoral students always enter with a master's degree, typically an MLS. In this study, only Ian did not have an MLS, although he did have a master's degree in social work. Nerad and Cerny also found that students whose master's degree was from the institution where they enrolled for doctoral study took less time than those with degrees from elsewhere; that was the case for five of the seven respondents in this study, since only Stephen and Jason had their master's degrees from the doctoral institution they attended. While Nerad and Cerny's research focused primarily on completers rather than non-completers,

they were able to link factors related to longer time to completion (TTC) with those related to higher attrition. These results would suggest that students who pursue doctoral degrees at the institution from which they earned their MLS would be less likely to depart without completing their degree—an issue explored further in the section of this chapter addressing implications for doctoral programs.

Lack of clarity in policies and process

The issue of poorly defined policies, procedures, and expectations related to the doctoral process was raised by many of the participants in this study. From entry requirements to comprehensive exams to proposal preparation, all of the respondents expressed unhappiness with the lack of clarity and completeness in the program-related information they received, particularly as related to the process that they were expected to follow through the stages of the doctoral program. This reflects a common finding in attrition research, particularly in the context of the humanities and many of the social sciences, where the expectation is that students will work as “isolated scholars” rather than as part of a research team.

Role of assistantships

Both Nerad and Cerny (1993) and Bowen and Rudenstine (1992) have found a relationship between the types of financial aid that students receive during their doctoral study, and their likelihood of completing their degrees. Their studies have shown that students receiving

fellowships typically have higher completion rates than those receiving assistantships. Nerad and Cerny went so far as to examine the effect of various types of aid at different stages of the doctoral process; in their recommendations for graduate programs, they suggested that aid to doctoral students in humanities and social sciences should follow a specific pattern to encourage shorter completion times and lower attrition:

[We] would recommend that, if at all possible, humanities and social science departments implement a support package that gave students an efficient mix of support for each stage of the doctoral program—fellowships for the first year, teaching assistantships for years two and three, fellowships at the conceptualizing stage of the dissertation, and, if available, research assistantships and a dissertation-writing fellowship for the final two years. (p. 35)

None of the subjects in this study mentioned receiving fellowships; however, Stephen and Jason both discussed the negative impact that their assistantship roles had upon their first year of study—Stephen mentioning the heavy workload, and Jason discussing both the workload and the disillusionment associated with the research project he had been assigned to work on. It is possible that fellowship aid rather than assistantships could have provided these students with a better socialization into and commitment to the doctoral program during the critical first year experience.

Advisor relationship

The relationship between doctoral student and advisor is described by both writers of handbooks (Hawley, 1993; Peters, 1997; Phillips &

Pugh, 1994; Sternberg, 1981) and scholarly researchers (Golde, 1996; Katz, 1997; Kerlin, 1997; Lovitts, 1996) as a key component of the doctoral experience. Golde, Kerlin, and Lovitts all found that attrition was strongly correlated with poor advisor relationships. This study supported that finding, given that four out of seven of the respondents—Stephen, Christine, Maya, and Patrice—reported problems with their advisors as key focal situations during their doctoral experiences. None of the respondents described their advisors as being “bridges” in their gap-bridging processes, indicating that the relationship between student and advisor for all of these respondents was not particularly strong.

Findings Unique to This Study

While in many respects the results of this research supported the findings of other researchers, there were some important differences between these results and those reported in other attrition studies. In this section, the major themes identified in this research that did not fit the existing models of doctoral attrition are examined and discussed.

Mistrust of information provided by the institution

The evidence of consistent and widespread mistrust of information provided by school representatives reported by the participants in this study is not reflected in any other current attrition research. This factor appears to be closely related to the issue of early concerns and limited commitment to the program, discussed in the previous section—it is more

difficult for a student to feel certain about the educational path ahead of them when information about that path is not just limited, but is also considered suspect. Without confidence in the advice provided by faculty and students in the program, these students had difficulty in developing the necessary commitment to and confidence in the decision to pursue a doctorate that researchers such as Lovitts (1996) and Nerad and Cerny (1993) have identified as key issues in doctoral time-to-completion and attrition.

Positive outlook about departure from doctoral study

Perhaps the most surprising finding in this research was the remarkably positive characterization of their departure from doctoral study that the respondents provided. Where other researchers into attrition have found frequent evidence of lingering anger, resentment, and unhappiness following the decision to depart doctoral study (Golde, 1996; Kerlin, 1997; Lovitts, 1996), this research showed another side to the picture—one where the decision to leave was a positive choice, and the path through the doctoral program was seen as beneficial even though it had not led to the Ph.D degree. While the small size of the group studied makes it difficult to generalize from these results, the fact that six of the seven respondents shared this overall positive view of their decision to leave their programs is significant enough to indicate a need for more research into this aspect of LIS doctoral study.

Persuasion by faculty during entry decision

The fact that four of the seven respondents described being persuaded by faculty members to pursue their doctorates serves as an indication that these students were highly thought of as students and as potential faculty members. One of the arguments made in defense of high doctoral attrition rates is that attrition is the result of a “natural selection” process that weeds out inferior candidates and strengthens the value and prestige of the degree (Ziolkowski, 1990). However, given the strong interest the institutions had in enrolling these students—implying a belief on the part of the faculty that these were good candidates for the Ph.D. degree—it is all the more troubling that they left the programs without completing the degrees.

Another explanation for this persuasion could be the realization on the part of the faculty in LIS doctoral programs that the future of their programs in the academy depends in part upon the success of their doctoral programs—this may lead them to recruit more actively, even in cases where the student is not enthusiastic about, or well-suited to, doctoral study. Again, more study is necessary—including interviews with faculty members—in order to understand this issue more clearly.

Notable absences: financial support and family situations

In addition to the new attrition-related factors described above, this research seemed to contradict certain other factors that have been noted

as significant in past attrition research. Two of those factors were the role of financial support, and the impact of family responsibilities and pressures.

The issue of financial support appeared in these narratives only in the discussion of entrance into the doctoral programs. Several of participants noted that they had questions before entering their programs about the level of financial support they would receive. However, none mentioned lack of support as an aspect of their situations, or as a gap that they faced before or during their programs. The fact that all seemed to have strong support is another indicator that they were highly thought of, since financial support is usually provided only to students who are seen as good candidates for the degree. It is also an indication that their departure from doctoral study resulted in a financial loss to their institutions, which had invested in their study through the provision of financial aid.

As reported in Chapter 5, family and relationship issues appeared primarily as peripheral issues in the descriptions of the doctoral experience provided by the respondents in this study. Given the importance placed on this factor in so many qualitative studies (Golde, 1996; Jacks et al., 1983; Kerlin, 1997; Lovitts, 1996) and opinion pieces (Seashore, 1999; Ziolkowski, 1990) on the topic of doctoral attrition, this absence of family stresses and demands in the context of gaps and blocks in the doctoral experience is somewhat surprising.

Given the preliminary nature of this research, it is difficult to tell whether the new factors identified in this research—and the differences between findings by other researchers and the findings in the present study—are unique to the field of LIS, or whether their discovery is simply a result of studying attrition using the sense-making methodology as opposed to other more traditional research methods. The only exception is the positive characterizations these respondents placed on their departures from graduate study, a finding that clearly contradicts the results of other researchers into attrition; this appears to be a finding that is specific to the field of LIS, perhaps because of the older ages of students in this field, and the strong belief in the validity of their own decision-making that most evidenced. The determination as to which of the other factors identified in this study are unique to the field of LIS can only be made by extending the research in this study in order to compare LIS students to those in other disciplines, which is discussed in more detail in the final section of this chapter.

Implications for Doctoral Programs in LIS

Identifying the factors related to doctoral attrition is only a first step towards addressing and correcting the problem. This section lays out some preliminary suggestions as to how doctoral programs in LIS could use the results of this study to modify their recruitment of doctoral students as

well as the methods they use to support students once they have entered the program.

Clarification and Improved Documentation of Degree Requirements

Over and over again, attrition researchers have noted the negative effect of poor documentation and communication of doctoral degree requirements on students' time-to-completion and attrition rates (Golde, 1996; Jacks et al., 1983; Kerlin, 1997; Lovitts, 1996; Nerad & Cerny, 1993). Short time-to-completion and low attrition are consistently correlated with academic disciplines and departments providing clear information and expectations regarding the student's and the faculty's roles in the degree process—most notably in the “hard” sciences, where students typically proceed through a structured and highly-supervised team-based process. In contrast, long time-to-completion and high attrition are correlated with disciplines and departments in which program information and faculty expectations are poorly documented and communicated—typically in the humanities and many of the social sciences, which follow a “solitary scholar” model that requires the student to essentially determine their own path through the program.

The present study reinforces those results in the context of LIS doctoral education, finding that most of the respondents were unable to get even basic information about program requirements when entering, and throughout their doctoral studies. Doctoral programs in LIS may need to

rethink the way they provide information to students, better documenting program requirements and processes, and providing more support to students regarding the process of doctoral study. While traditionally, the open-ended approach that respondents in this program complained about has been a hallmark of many social science doctoral programs, LIS programs would be well-advised to examine the more structured and team-based approach used in the hard sciences, with an eye towards creating an environment that draws the students into the departmental and disciplinary culture of LIS, rather than pushing the student away. The recent trend toward naming and conceptualizing LIS as a science (“information science”) may help to support such a shift in the design of doctoral programs.

“Informed Consent” Protocol for Entering Students

In his discussion of elements to be included in a well-designed professional development program, Seashore (1999) lists as the first item something he calls “informed consent”; he sees it as critical that students know exactly what it is they are committing to when they enter a graduate degree program:

Students need to have access to information which helps them look at some of the ways in which professional skill and competence development are linked to personal growth and the relationships around family and close friends. Specifically, they need to have some help in assessing whether they have the time or resources or inclination to risk opening up Pandora's Box or their own can of worms.

While related to the issue of program requirements and information discussed above, this idea of informed consent really focuses more on the issue of early commitment to the degree process. Without a clear understanding of the level of commitment required to successfully complete a doctoral program, it is unrealistic to expect the majority of entering students to persist in their studies when confronted with the mounting pressures of doctoral study.

Lovitts (1996) also addresses this issue of informed consent, suggesting in her conclusions and recommendations that graduate schools should not focus on recruiting the “best students,” but rather on the students with the best fit in their department. She also recommends that students be provided with detailed information about program requirements and expectations early in the admissions process, and that part of their orientation be introductions to faculty and other students (beginning and advanced) who can provide them with more information about the doctoral experience.

However, as Becker notes in *Tricks of the Trade* (1998), there is a natural tendency for faculty and program administrators to minimize negative aspects of their programs, and even to misrepresent the nature of the program so as to make it appear more attractive to potential students. By doing so, they set the stage for high attrition, as students discover along the way that the program is not what they had anticipated, and choose to

take a different path in order to route around the gaps that this dissonance in expectations creates. For attrition rates to improve in LIS, it is likely that a commitment will need to be made to “full disclosure” of expectations—including the stresses and negative aspects of doctoral study.

Need for Improved Integration Into the Academic Community

The fact that so many LIS students enter their doctoral programs relatively late in life compared to other academic disciplines may make it more difficult for them to integrate smoothly into the academic and disciplinary context of LIS, as well as the departmental and institutional culture of their program. Seashore (1999) describes one aspect of the returning adult student’s experience quite vividly:

For persons who have, one way or another, managed to extricate themselves from the status of student after the seemingly endless sequence from pre-school through graduate school, returning to student status has got to be a “bummer.” The evaluative aspect alone may be enough to trigger those unresolved issues of one's childhood without adding the rather unsettling experience of being assigned eight or ten siblings with whom you are supposed to have some unspecified form of interdependence for a couple of years.

Nerad and Cerny (1993) note that when students are treated as “junior colleagues” rather than “adolescents” that time-to-completion is shortened, and attrition is reduced. LIS programs and faculty need to find ways to recognize the experience and maturity that many of their students bring to their doctoral studies, and must work to integrate these students into their departmental, disciplinary, and institutional academic

cultures rather than alienating them through lack of respect for their knowledge and accomplishments.

Potential Value of Combined MLIS/Ph.D. Programs

One important difference between LIS doctoral programs and many other academic doctoral programs is that the master's degree and the Ph.D. degree in the field are considered separate programs, and even at schools with both degree programs, students are not admitted into a combined MS/Ph.D. program. Instead, they must apply separately for the doctoral program after completing their MLS/MS. By decoupling these degrees, and not offering an opportunity for students to enroll in a combined degree program, LIS programs may be missing an opportunity to build the level of commitment to the degree that is critical for students to complete their doctorates.

A combined program would offer a number of benefits to students and programs. First, it would reduce the difficulties described in the previous section, where students must deal with the shift from competent professional in the field to understudy in academia. Second, it would allow students to follow up on their interests in the LIS curriculum immediately through doctoral research, rather than introducing the theoretical concepts in the master's program, and then having a gap between that introduction and the more detailed exploration associated with doctoral study. Third, it could encourage the development of bachelor's degree

programs in LIS, since such programs would be more likely to yield candidates for a combined MS/Ph.D. program, and would also provide increased teaching opportunities for both doctoral students and doctoral graduates.

Assessment and Communication of Ph.D. Job Opportunities

The development of programs that would increase the job market for LIS doctoral graduates—as described in the previous section—is really central to the issue of recruitment and retention of doctoral students. Many of the respondents in this study specifically mentioned the degree’s lack of perceived career instrumentality in their decision not to continue their studies. If potential and current doctoral students believe that completing the Ph.D. will do little for their careers, it is no wonder that it is difficult to recruit and retain students. Doctoral programs in LIS must ask themselves a critical question: Are there jobs that require the Ph.D. in LIS? If the answer to this question is yes, these opportunities must be better communicated to students in order to develop the sense of career instrumentality that will carry them through the program. If the answer is no, attention must be given to ways to increase the perceived value of the degree, and to expand the market for LIS doctoral graduates.

Methodological Contributions

The secondary research questions in this inquiry focused on methodological issues, which is where some of the most interesting and

useful findings of this project appeared. The question of the appropriateness of sense-making to the attrition research process, and educational research more broadly, was evaluated; sense-making has been used in a variety of contexts, but not at all in the context of student attrition. Also considered was the viability of electronic mail as a qualitative research tool, particularly in the context of a sense-making study.

Sense-Making and Attrition Research

In the first chapter of this work, the following question was posed: “Can a change from a “systems-oriented” research process (focusing on aspects of the doctoral program itself) to a “user-oriented” research process (focusing on the student’s perceptions and understanding of their doctoral experience) change our understanding of the factors underlying LIS doctoral attrition?” The answer to this question appears to be yes—the shift in focus provided by Dervin’s sense-making approach yielded a rich picture of the doctoral experience—one that supported existing research into attrition, but also went beyond those models to reveal previously unacknowledged aspects of the students’ experiences and allowing new attrition-related factors to emerge from their narratives.

Like other qualitative inquiries into attrition (Golde, 1996; Jacks et al., 1983; Kerlin, 1997; Lovitts, 1996), this research allowed for an exploration of the doctoral experience that was not constrained by pre-

selected, institutionally-focused factors. However, it did so in a relatively short, focused time frame—unusual in qualitative inquiry. This efficiency was a result of two factors, the first of which was the focused nature of the sense-making timeline interview, and the second of which was the use of electronic mail to conduct the interviews. Even without the use of electronic mail for interviewing participants, however, the sense-making interview is designed to elicit key elements of a given problematic situation quickly and effectively. By focusing in on a specific problematic situation, the sense-making interview allows the respondent to describe their experience in rich terms, but also provides a structure that quickly leads participant and researcher to the key issues underlying a given situation. While other qualitative inquiries into doctoral attrition have required multiple open-ended interviews, taking place over one or more years of study, the sense-making interview can be completed in a single session in-person, or over a few weeks electronically.

Although the amount of data collected and the length of this study were significantly less than similar qualitative inquiries, the results provided a richness of detail that quickly revealed similarities to other attrition research, as well as providing insights into factors not previously acknowledged. When told of the preliminary results of this study, Dervin was not surprised by these findings:

I have now done a fairly systematic study of a large number of interview books and I too have a sense that this approach gets to the

heart of issues faster. Certainly this is what the practicing librarians say who use it at the reference desk. We have Richard Carter to thank because his emphasis on the moment of gap being where the communicative action is informs Sense-Making in fundamental ways. (personal communication, 1999)

Use of Electronic Mail for Qualitative Interviews

The second methodological question addressed by this research was: “Does the use of electronic mail for interviewing research subjects yield data that is rich enough—and accurate enough—for use in a qualitative study?” The answer to that question has proven to be an unqualified yes. As a part of the research process, two subjects were interviewed both in person and via electronic mail. For both subjects, the responses provided in the electronic mail interviews were significantly more detailed and content-rich than the responses provided in the in-person interviews.

One of the reasons for the richness of data elicited by the electronic interviews may be the lack of time constraints on the interview process. In a traditional in-person setting, the sense-making timeline interview can be quite lengthy and time-consuming. If the subjects being studied are local, and/or there is sufficient access to the subjects to allow lengthy interviews over a period of time, this approach can be very effective. Often, however, subjects are geographically dispersed, or unable or unwilling to set aside large blocks of time for the interview process, making it difficult or impossible to utilize this type of detailed data-gathering process. Those problems can be circumvented by the use of

electronic mail for interviewing, since respondents can “time-shift” the components of the interview; by answering each question at a convenient time, they are able to spend more time on their answer.

The use of electronic mail also allows for additional reflection upon questions and answers by both interviewer and respondent during the interview process. In this research, the interview questions were sent out in separate messages over a period of time, with each message designed to build on the responses from previous questions. When the interview is conducted in-person, it is difficult for the respondent to recall the exact words and descriptions they used for their early answers—but when using electronic mail, the respondent and researcher both have access to an ongoing transcript of the interview. In several cases, respondents prefaced their remarks by saying “In looking over my answer to question X,” indicating that access to that transcript served for them as a valuable part of the interview process.

Further evidence of the value of this iterative process came in the responses of one of the respondents, who had requested that the questions be sent as a single block in order to speed her ability to complete and return her responses. While there were valuable components to her responses, it was clear that her answers were shorter and far less detailed than those provided by the participants who received the questions individually. In addition, her responses did not always follow the path

through the experience that might have been taken if the questions had been done separately—for example, her discussion of the questions in her mind during one focal situation diverged significantly from what she had described the questions as being in the previous response. Without the give-and-take between interviewer and respondent, it was difficult to ascertain why this shift had taken place, or to bring the focus back to the original questions described. It was also difficult to probe more deeply into comments and ideas that emerged, something that happened regularly in the other exchanges with respondents.

From a practical perspective, one of the greatest advantages of the use of electronic mail for this research was the efficiency it provided. This efficiency was evidenced in two key ways. First, the method was extremely cost-efficient. Although the respondents were geographically distributed—in locations ranging from Berkeley to New York City—there was no cost involved in travelling to meet with respondents, in long-distance charges, or even in postal mailing expenses. All communication took place over the Internet, which has no transactional fees associated with it. Additionally, the often significant expense of transcribing recorded conversations was absent from this process, since the conversations themselves constituted a written record of the interviews. Second, the method was efficient in terms of time—both on the part of the researcher and the respondents. As mentioned earlier, the asynchronous nature of the

communication, made it easier for subjects to find time for thoughtful, thorough responses even in the context of busy lives. It was possible for the researcher to conduct interviews with multiple subjects simultaneously, since neither travel nor in-person conversations were necessary. It also saved time by eliminating the need for transcribing the interviews and error-checking the transcripts.

At the start of this research, the primary concern related to electronic interviewing was whether it was capable of providing data of sufficient richness and depth for qualitative inquiry—if not, the efficiencies described above would be meaningless. However, it became clear through the process of conducting this research and analyzing the results that the use of electronic mail for interviewing in no way lessened the quality of the responses received. In order to provide a context for evaluating this aspect of the research methodology, the data-gathering phase of the research began with two in-person interviews conducted at the 1997 American Library Association midwinter meeting. Those interviews used the same protocol as was used in the later electronic interviews, but the responses were recorded on audiotape and on paper rather than received electronically. The respondents interviewed in person were later interviewed electronically for the purpose of comparing the results of the two interviews. The electronic interviews were found to have yielded far more detailed and useful responses than the interviews

that had been conducted in person. This difference can likely be attributed to the two factors described earlier—the time constraints inherent in in-person interviewing, and the ability of the respondents to reflect on their previous answers before responding to subsequent questions.

Making Sense of Sense-Making

Dervin's sense-making theory, methodology, and method provide an excellent starting point for doing research into a wide range of communication and information-related topics. However, while the literature on sense-making provides a great deal of detail and guidance on the design of the research and the gathering of data, it offers far less on the methods of analysis of the data once it has been retrieved.⁹ This "gap" in the sense-making literature was addressed in a variety of ways. First, this researcher made use of the community of sense-making researchers who participate in the project mailing list run by Dervin. The exchange of ideas and answers to questions that this list provided were an invaluable resource during the research design and analysis phases of this work. Second, existing dissertations and other research utilizing sense-making were examined for relevant examples of how the data could be analyzed and presented in the final chapters. And third, more general advice on

⁹ A draft paper on content analysis (Dervin, 1991b) provides some detail on data analysis, but from a fairly limited perspective that did not prove to be applicable to preliminary theory-building research .

qualitative research and analysis provided in Becker's *Tricks of the Trade* (1998) were used to structure the analytical portion of this work.

It was the use of Becker's ideas that provided the greatest assistance in operationalizing and articulating the concepts of sense-making and the ideas that emerged from the data gathering and analysis process. His discussions of topics such as useful mental imagery for understanding connections in your data, ways of re-evaluating your results outside of the "box" of your initial research questions, and methods for expanding nascent ideas and "hunches" into logical and well-documented conclusions provided the necessary bridge that this researcher required to bridge the uncertainty and confusion associated with the completion of the data gathering process, and to move forward with the analysis of the data.

Suggestions for Future Research

This research has potential for expansion in three primary directions: one is to go deeper into the issues of LIS doctoral programs and students, another is to expand this inquiry into a broader exploration of doctoral attrition, and the third is to expand the e-mail methodology developed in this research into other sense-making explorations. What follows in this section is a series of suggestions for research in each of these directions.

Research Into LIS Education

An obvious next step for the extension of this research would be to use the results of this study to build a more formal content analysis scheme for coding responses to sense-making interviews or questionnaires, and to survey a larger number of doctoral students in LIS—current students, former students who have completed their doctorates, and students who have left their programs. One approach would be to divide respondents into the three types of doctoral students that Lovitts identified and described in her research: pure completers (those who completed their doctorates without any serious contemplation of abandoning their studies), at-risk completers (those who completed their doctorates, but at some point considered leaving their programs), and non-completers.

Another option for expanding this study in the context of LIS education would be to do longitudinal research on entering doctoral students, in order to determine whether factors identified in this research are consistent predictors of attrition or completion in an entering cohort of students.

Finally, it would be useful to repeat this research with students who left their programs before 1990, and those who leave their programs during the next few years, in order to determine whether the factors identified in this study remain consistent over time. This would help us to understand the extent to which these results are a function of current

shifts and changes in LIS education, as opposed to consistent discipline-specific factors.

Research into doctoral attrition

It would be particularly useful to expand the scope of any follow-up study to include fields other than LIS, in order to determine which of the factors identified in the present study are discipline-specific, and which were discovered as a result of the sense-making approach utilized in this study. By doing a similar study, but including students from a variety of fields, it would be possible to determine which factors identified here as “unique” appeared consistently in other fields of study, and which were limited to the field of LIS.

Sense-making research via e-mail

Perhaps the most interesting expansion of this research will come through the use of sense-making inquiries using electronic mail as the medium. One of the challenges of qualitative inquiry is the need for researchers to go to where their subjects are located in order to do face-to-face interviews. By using “virtual space” as the meeting place, it is possible for sense-making researchers to greatly expand their pool of available subjects, and to significantly reduce the cost of doing qualitative research due to the lack of travel and transcription costs associated with the interviewing.

In particular, the use of e-mail-based sense-making research to investigate the user perspective on a problematic system could be extended to look at a variety of issues, including telecommuting and distance learning, two topics that are important in business and education respectively. While extensive research has been and is being done into both of these topics, most of it focuses on the systems perspective discussed earlier in this work, rather than on the user perspective that characterizes most qualitative inquiries, and sense-making in particular. It is in this direction that this researcher currently intends to extend the results of this research, as this expansion of the methods of qualitative research holds great promise for researchers in a variety of academic disciplines.

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APPENDIX A: INTERVIEW INSTRUMENT

Preliminary Message: About the Study, Informed Consent

Thanks so much for agreeing to participate in the study!

As I said in my first message to you, the research will take the form of a series of open-ended e-mail questions that I'll send to you. The methodology I'm using is known as "sense-making," and was developed by Brenda Dervin to help better understand people's information needs in specific contexts. I'm using it to help us to understand what kinds of "helps" doctoral students need when entering and going through their programs of study, and what the information "gaps" in their experiences are. As a result, we'll be focusing a lot on the kinds of questions you had related to your doctoral study, and the answers you received (or didn't) at the time. You're welcome to look through my dissertation proposal at <http://www.itcs.com/elawley/proposal.full.html> if you'd like more information about this approach.

I know that this topic is one that can raise some sensitive issues, and I assure you that your anonymity and confidentiality would be maintained at all times. While I cannot, of course, guarantee the safety of the e-mail while in transit, all messages, tapes, and transcripts would be stored only in my office, and would have all identifying information removed and replaced with a subject ID#.

Before we begin, I have an "informed consent" form that I'll need you to sign and return to me via fax or mail. I can provide it as an e-mail attachment (Microsoft Word format), or I can fax or mail it to you--just let me know what you prefer.

Once I have the form in hand, we can begin the actual interview. The process takes approximately two weeks, and involves my sending you the questions in seven separate messages, each of which you can take up to two days to answer. Please let me know what two-week period would be best for you for this process, and we can set a date to begin the interview. In the meantime, if you should have any questions or concerns, please let me know via e-mail or by telephone at XXX-XXX-XXXX (feel free to call collect).

First Message: Demographics & Timeline

Thanks again for agreeing to participate in this study! As we discussed, I'll be sending you a series of messages to read, reflect upon, and answer. It would be best if you could reply to each message within two days, as there are seven messages, and the entire process must be completed within the next two weeks. Once we've completed the e-mail interview, I'll send you my summary of the responses to review, and then we'll schedule a time for me to call you for a final review and discussion of your replies.

I'd like to start by gathering some basic information about you. As we discussed, this information will be kept completely confidential; only broad characteristics, such as your age and gender, will be linked with your replies in the published research. Your name will not be stored with any of the replies you provide. Where necessary in the reporting of results, even the information below may be masked or "genericized" in order to protect your identity.

Gender:

Age:

Year You Received MLS (if applicable):

School Attended for Doctoral Study:

Year You Entered Doctoral Program:

Marital Status (entering program):

Number of Children (entering program):

Year You Left Doctoral Program:

Marital Status (leaving program):

Number of Children (leaving program):

I want to begin by having you write out a timeline of what I call "path-changes" in your life. By this I mean times when you decided to make major changes in your life, whether they were related to personal, academic, or business contexts. Some examples of path-changes might be a divorce, entering or leaving school, changing jobs, or moving from one city to another. What sets a path-changing event apart from many other major events in your life is that they take place when you set out to do one thing, but find for whatever reason that you need or would like to be doing something else. So, graduating from college wouldn't be a path-change, but quitting your job abruptly might be. One person's timeline might look like this:

1980:Quit job in student services to go to library school
 1985:Switched from technical services to public services job
 1987:Chose not to return to work after birth of child
 1994:Dropped out of doctoral program

It's possible that entering and leaving your doctoral program were not path-changing events for you. If so, and those events do not appear on the timeline you just created, go ahead and add them in.

That's it for this first question!

**Second Message: Probe Timeline, Define First Focal Situation
 [Questions/additions to timeline?]**

Now that we have the general framework of information in place, I want to ask you some specific questions about the events in your life leading up to your decision to enroll in a doctoral program of study, and your experiences in that program. As we proceed, you may have some particularly strong memories, and I'd like to hear all of them. I have a questionnaire structure which guides how and when I ask you about different parts of your memories. By using this structure, we can compare your experiences with others', while still allowing you to recall your particular experiences.

During this process, we'll be looking at three specific situations that you will select: one associated with your

decision to enter a doctoral program in LIS, one during your program, and one associated with your decision to leave.

What I'd like for you to do first is to choose a situation that occurred in the past that related to your decision to begin a doctoral program in LIS, and where you felt that you were in some way blocked or hindered from accomplishing your goals or getting the information you required. The "block" could take the form of a person (including yourself), a bureaucracy, a rule, a lack of a specific item, or any number of things. This situation could be a discussion with a family member, friend, or colleague; visiting a campus; reading an article or book; or simply an occasion when you were particularly focused on the idea of doctoral study. It's important that you be able to recall the situation clearly, and reconstruct the questions and thoughts that you were having at the time.

Please describe the situation, and provide the date (approximate if necessary) that it occurred.

The rest of the questions in this message have to do with the situation you just described.

In the situation you described above, how did you see yourself as blocked?

Did you see this situation as being connected to or related to other important situations in your life at the time?

If yes, what situations?

Did you see this situation as substantially different from other path-changing situations you've encountered in your life?

If so, in what ways?

Did you see this situation as substantially similar to other path-changing situations you've encountered in your life?

If so, in what ways?

Now I'd like you to go back in your mind and try to identify what the questions you had in your mind at the time were. By questions, I mean things that you wanted to find out, learn about, come to understand, unconfuse, or make sense out of. You need not have asked the question out loud, nor found an answer; we simply want to identify gaps in understanding that you faced at the time. These may not have been in your mind as questions, but rather as unclear aspects of the situation or your feelings. In these cases, what I need you to do is to translate that aspect into a question, or to simply talk about that aspect so that together we can translate it into a question.

Here's an example: Suppose I'm in a grocery store, and have just wheeled my cart into the produce section. That is my specific situation, one that I can picture in my mind. My questions might be: Where are the avocados? How can that man wear purple pants in public? Why is that man spraying the lettuce? Are mushrooms still \$3.00 a pound? I wonder if the corn is as good as it looks? Etc.

Now, thinking about your particular situation, what questions did you have in your mind?

That's it for this part of the interview. We'll explore those questions in more detail in the next message. If possible, please try to send me your response by [date two days from now]. And keep those questions you just formulated in mind; the next part of the interview will explore the questions in more detail.

Third Message: Analysis of First Situation

In this part of the interview, we're going to analyze the specific questions that you listed in your last message. As you go through this process, you may think of other questions that were in your mind at the time. If so, go ahead and add those to the end of your response, and analyze them using the format provided for the questions here.

We're going to start by looking at the motivations behind each of your questions. By that, I mean what you were trying to accomplish or understand by asking the question.

Going back to the grocery store example that we used before, when I entered the produce department and asked if the mushrooms were still \$3.00 per pound, what I might have been trying to do was decide whether or not to get mushrooms for myself because I like them, but I was worried about paying too much. I also might have been curious because even though I don't like mushrooms, it is interesting to me that some people will pay up to \$3.00 per pound for them, like maybe that guy in the purple pants.

Given that, think back to when you asked [question 1]. What was it that you were trying to do by asking this question?

When you had this question in your mind, did you see yourself as blocked or hindered in some way?

If yes, how did you see yourself blocked?

Were you able to find an answer to this question?

If yes:

Was it a complete or a partial answer?

How did you get the answer?

How did the answer help you?

If no:

What do you see as having prevented you from getting an answer?

How do you think the answer could have helped you?

Repeat for each question.

That's it for this part of the interview. If possible, please try to send me your response by [date two days from now]. With my next message, we'll begin looking at the next focal situation.

Fourth Message: Define Second Focal Situation

What I'd like for you to do now is to choose a situation that occurred while you were enrolled in your doctoral program in LIS, where you felt that you were in some way blocked or

hindered from accomplishing your goals or getting the information you required. Again, the "block" could take the form of a person (including yourself), a bureaucracy, a rule, a lack of a specific item, or any number of things. It's important that you be able to recall the situation clearly, and reconstruct the questions and thoughts that you were having at the time.

Please describe the situation, and provide the date (approximate if necessary) that it occurred.

The rest of the questions in this message have to do with the situation you just described.

In the situation you described above, how did you see yourself as blocked?

Did you see this situation as being connected to or related to other important situations in your life at the time?

If yes, what situation(s)?

Did you see this situation as substantially different from other path-changing situations you've encountered in your life?

If so, in what ways?

Did you see this situation as substantially similar to other path-changing situations you've encountered in your life?

If so, in what ways?

Now I'd like you to go back in your mind and try to identify what the questions you had in your mind at the time were. To review, by questions, I mean things that you wanted to find out, learn about, come to understand, unconfuse, or make sense out of. You need not have asked the question out loud, nor found an answer; we simply want to identify gaps in understanding that you faced at the time. These may not have been in your mind as questions, but rather as unclear aspects

of the situation or your feelings. In these cases, what I need you to do is to translate that aspect into a question, or to simply talk about that aspect so that together we can translate it into a question.

Now, thinking about your particular situation, what questions did you have in your mind?

That's it for this part of the interview. If possible, please try to send me your response by [date two days from now]. And keep those questions you just formulated in mind; the next part of the interview will explore the questions in more detail.

Fifth Message: Analysis of Second Situation

Now we're going to analyze the specific questions that you listed in your last message. As you go through this process, you may think of other questions that were in your mind at the time. If so, go ahead and add those to the end of your response, and analyze them using the format provided for the questions here.

Again, we'll begin by looking at the motivations behind each of your questions. By that, I mean what you were trying to accomplish or understand by asking the question.

When you asked [question 1], what was it that you were trying to do or find out?

When you had this question in your mind, did you see yourself as blocked or hindered in some way?

If yes, how did you see yourself blocked?

Were you able to find an answer to this question?

If yes:

Was it a complete or a partial answer?

How did you get the answer?

How did the answer help you?

If no:

What do you see as having prevented you from getting an answer?

How do you think the answer could have helped you?

Repeat for each question.

That's it for this part of the interview. If possible, please try to send me your response by [date two days from now]. With my next message, we'll begin looking at the next focal situation.

Sixth Message: Define Third Focal Situation

What I'd like for you to do now is to choose a situation in the past associated with your decision to leave your doctoral program in LIS, where you felt that you were in some way blocked or hindered from accomplishing your goals or getting the information you required. Again, the "block" could take the form of a person (including yourself), a bureaucracy, a rule, a lack of a specific item, or any number of things. It's important that you be able to recall the situation clearly, and reconstruct the questions and thoughts that you were having at the time.

Please describe the situation, and provide the date (approximate if necessary) that it occurred.

The rest of the questions in this message have to do with the situation you just described.

In the situation you described above, how did you see yourself as blocked?

Did you see this situation as being connected to or related to other important situations in your life at the time?
If yes, what situation(s)?

Did you see this situation as substantially different from path-changing situations you've encountered in your life?
If so, in what ways?

Did you see this situation as substantially similar to path-changing situations you've encountered in your life?

If so, in what ways?

Now I'd like you to go back in your mind and try to identify what the questions you had in your mind at the time were. To review, by questions, I mean things that you wanted to find out, learn about, come to understand, unconfuse, or make sense out of. You need not have asked the question out loud, nor found an answer; we simply want to identify gaps in understanding that you faced at the time. These may not have been in your mind as questions, but rather as unclear aspects of the situation or your feelings. In these cases, what I need you to do is to translate that aspect into a question, or to simply talk about that aspect so that together we can translate it into a question.

Now, thinking about your particular situation, what questions did you have in your mind?

That's it for this part of the interview. If possible, please try to send me your response by [date two days from now]. And keep those questions you just formulated in mind; the next part of the interview will explore the questions in more detail.

Seventh Message: Analysis of Second Situation

Now we're going to analyze the specific questions that you listed in your last message. As you go through this process, you may think of other questions that were in your mind at the time. If so, go ahead and add those to the end of your response, and analyze them using the format provided for the questions here.

Again, we'll begin by looking at the motivations behind each of your questions. By that, I mean what you were trying to accomplish or understand by asking the question.

When you asked [question 1], what was it that you were trying to do or find out?

When you had this question in your mind, did you see yourself as blocked or hindered in some way?

If yes, how did you see yourself blocked?

Were you able to find an answer to this question?

If yes:

Was it a complete or a partial answer?

How did you get the answer?

How did the answer help you?

If no:

What do you see as having prevented you from getting an answer?

How do you think the answer could have helped you?

Repeat for each question.

That's it! We're done.

What I'll do next is write up a summary of what you've told me, and send it to you for your review and comments. Then we'll schedule a time for me to call you and discuss the process and your responses. Again, thanks so much for taking the time to participate in the study!

APPENDIX B: INFORMED CONSENT LETTER

University of Alabama

School of Library and Information Studies

Letter of Informed Consent

Date: _____

I, (print name in full) _____ was a
doctoral student registered at (name of institution)

_____. In signing this consent
form, I agree to volunteer in the dissertation research being conducted by
Elizabeth Lane Lawley between February and December of 1997.

I understand that the research being conducted relates to the experiences
of doctoral students in library and information studies that contribute to
attrition and doctoral persistence. I understand that excerpts from my
electronic mail messages, written transcripts and tape-recorded verbal
communications with the researcher will be studied and may be quoted in
a doctoral dissertation and in future papers, journal articles and books that
will be written by the researcher.

I grant authorization for the use of the above information with the full
understanding that my anonymity and confidentiality will be preserved
at all times. I understand that my full name or other identifying
information will never be disclosed or referenced in any way in any

written or verbal context. I understand that transcripts, both paper and electronic versions, will be secured in the privacy of the researcher's home office and that any audio tapes of my conversations with the researcher will be erased no later than January 1998.

I understand that my participation is entirely voluntary and that I may withdraw my permission to participate in this study without explanation at any point.

I grant permission to use one of the following:

_____ My first name only

_____ Only a pseudonym

Signature

Date