MODELING SITUATED HEALTH INFORMATION SEEKING AND USE IN CONTEXT: THE USE OF TWO APPROACHES TO GROUNDED THEORIZING AS APPLIED TO 81 SENSE-MAKING METHODOLOGY DERIVED NARRATIVE INTERVIEWS OF HEALTH SITUATION FACING

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
Mei Song

The Ohio State University
2007

Dissertation Committee:

Professor Brenda Dervin, Adviser
Professor Daniel McDonald
Professor Prabu David

Approved by

Adviser
Graduate Program in Communication
ABSTRACT

Most health communication studies have focused on how source-channel use relates to information seeking and use. This research has assumed information seeking and use are social-psychological processes but has rarely studied the processes themselves. Little qualitative work has been done to reveal complexities. In contrast, library and information science (LIS) researchers also conduct information behavior research with substantial work using qualitative situationally contextualized wholistic approaches. LIS has, however, rarely focused on health contexts.

This dissertation aimed to: 1) bring research developments from LIS to bear on health communication studies; and 2) compare two qualitative approaches to grounded theorizing: Schatzman’s grounded theory dimensional analysis and Dervin's Sense-Making Methodology situational contingency analysis. Both were applied to 81 in-depth interviews with university faculty and students.

Schatzman’s dimensional analysis produced a model of situated information seeking and use, showing health information seeking and use as processes with four dimensions – contexts, conditions, actions/behaviors and outcomes. Situated in specific situations defined by related contextual factors, informants engaged in three major actions – entering situations, identifying information needs and getting source inputs. Information behaviors were conditioned by barriers that blocked access to sources or
compromised source helpfulness. Informants used different criteria to judge relevance of sources, channels, information contents, and situations. Informants saw source inputs as helping them in various ways, and occasionally, as hindering. They also reported learning special lessons.

Dervin's Sense-Making Methodology situational contingency analysis revealed a consonant but complex picture. In general, situation was a far better predictor than academic rank, associating best with information needs, helps sought and helps gained from sources. Academic rank related most strongly to helps sought and sources used. Academic rank also related to information needs and helps from sources but only in some situations.

The two approaches answered different questions. Schatzman’s dimensional analysis produced a model explaining behavior at a general level. Dervin’s situational contingency analysis displayed a more situated picture focusing on specific moments of situation facing. Taken together, the two approaches showed potentials of grounded theorizing approaches generally, and different implementations, in enhancing health communication theorizing and better understanding situated heath information seeking and use.
Dedicated to my mother and son

For giving me the courage and hope to

Go on, go on, and go on…
ACKNOWLEDGMENTS

First and foremost, I would like to extend my deepest heart-felt gratitude to my advisor, Dr. Brenda Dervin, for her intellectual inspiration and advice, which made this dissertation possible under difficult situations. I am truly indebted to her for the last five years as her advisee. Without her continuous encouragement and challenging me always to go beyond the norms, I could not have possibly been where I am today academically.

I wish to thank Dr. Daniel McDonald and Dr. Prabu David for their stimulating discussions and suggestions in the process of this work. They also have been willing to offer helps when most needed.

My thanks also go to my friends here and those scattered at different corners around the world. They are sources of encouragement, and more importantly, they believe in me for my ability to actually accomplish this seemingly impossible mission. I especially wish to thank Min Deng and Tingting Lu for sharing my frustrations and excitements along the journey.

Finally there is my family here and across the Pacific Ocean. They are always with me each step of my academic growth, cheering me up when I feel down and beating down my arrogance when my tail wags. My sincerest gratitude goes to my husband Xin Wang for his truly unconditional support and my dearest son Yiding for giving me the strength to hang in there.
VITA

1992 ........................................... B.A. English Language and Literature
Guangzhou Foreign Language University

1996 ........................................... B.A. International Journalism
China School of Journalism

1999 – 2001 ................................. Graduate Teaching Associate
The Ohio State University

2002 ........................................... M.A. Journalism
The Ohio State University

2002 – 2006 ................................. Graduate Research Associate
Graduate Teaching Associate
The Ohio State University

PUBLICATIONS

seeking in hyperlinked environments: The role of goals, self-efficacy, and
intrinsic motivation. International Journal of Human-Computer Studies, 65, 170-
182.

FIELDS OF STUDY

Major Field: Communication
Graduate Interdisciplinary Specialization in Survey Research
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>ii</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>v</td>
</tr>
<tr>
<td>Vita</td>
<td>vi</td>
</tr>
<tr>
<td>List of Tables</td>
<td>x</td>
</tr>
<tr>
<td>List of Figures</td>
<td>xii</td>
</tr>
<tr>
<td><strong>Chapters:</strong></td>
<td></td>
</tr>
<tr>
<td>1. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Rationale for the study</td>
<td>2</td>
</tr>
<tr>
<td>2. Review of two literatures</td>
<td>8</td>
</tr>
<tr>
<td>The concept of information</td>
<td>8</td>
</tr>
<tr>
<td>Information seeking and use in health communication</td>
<td>11</td>
</tr>
<tr>
<td>Motivational factors of health information seeking</td>
<td>11</td>
</tr>
<tr>
<td>Information needs in health situations</td>
<td>17</td>
</tr>
<tr>
<td>Channels and sources for health information seeking</td>
<td>23</td>
</tr>
<tr>
<td>Uses of health information</td>
<td>29</td>
</tr>
<tr>
<td>Information seeking and use in LIS literature</td>
<td>34</td>
</tr>
<tr>
<td>Information seeking as a process</td>
<td>34</td>
</tr>
<tr>
<td>Information seeking in context</td>
<td>39</td>
</tr>
<tr>
<td>Situationality and information seeking</td>
<td>48</td>
</tr>
<tr>
<td>3. Study design and methods</td>
<td>54</td>
</tr>
<tr>
<td>The grounded theory approach</td>
<td>54</td>
</tr>
<tr>
<td>Grounded theory and lived experience</td>
<td>57</td>
</tr>
</tbody>
</table>
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>A summary of demographic characteristics of all informants</td>
<td>64</td>
</tr>
<tr>
<td>4.1</td>
<td>Three types of contextual factors for information seeking and use in health situations</td>
<td>102</td>
</tr>
<tr>
<td>4.2</td>
<td>Different perceptions of situation involvement by informants in health situations</td>
<td>107</td>
</tr>
<tr>
<td>4.3</td>
<td>Sub-categories of information needs identified by inductive analysis</td>
<td>119</td>
</tr>
<tr>
<td>4.4</td>
<td>Number of sources used by informants across academic rank in health situations</td>
<td>121</td>
</tr>
<tr>
<td>4.5</td>
<td>The most, least used source and source combination in the order of use frequency for all informants in health situations</td>
<td>128</td>
</tr>
<tr>
<td>4.6</td>
<td>A summary table of all evaluation criteria related to information sources, channels, content and situation</td>
<td>147</td>
</tr>
<tr>
<td>4.7</td>
<td>Sub-categories of information helps identified by inductive analysis of interviews</td>
<td>158</td>
</tr>
<tr>
<td>4.8</td>
<td>Sub-categories of information hindrances identified by inductive analysis of interviews</td>
<td>162</td>
</tr>
<tr>
<td>4.9</td>
<td>Sub-categories of situational learnings identified by inductive analysis of interviews</td>
<td>173</td>
</tr>
<tr>
<td>4.10</td>
<td>An overview of the contingent relationship between academic rank and patterns of health information seeking and use behaviors</td>
<td>176</td>
</tr>
<tr>
<td>4.11</td>
<td>A summary of information needs by informants across academic rank</td>
<td>178</td>
</tr>
<tr>
<td>4.12</td>
<td>A summary of helps sought by informants across academic rank</td>
<td>180</td>
</tr>
</tbody>
</table>
4.13 A summary of helps from sources reported by informants across academic rank ................................................................. 183

4.14 A summary of situational learnings reported by informants across academic rank ............................................................. 185

4.15 Categories inductively obtained from the interview data to describe focus of situation ...................................................... 186

4.16 A typology of the contingent relationship between focus of situation and patterns of health information seeking and use behaviors .................. 188

4.17 An overview of the intersection of academic rank and focus of situation on information seeking and use behaviors ......................... 206
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>The Sense-Making Metaphor</td>
<td>66</td>
</tr>
<tr>
<td>3.2</td>
<td>The Sense-Making Triangle</td>
<td>67</td>
</tr>
<tr>
<td>4.1</td>
<td>A model of situated information seeking and use in health situations</td>
<td>92</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

When individuals encounter a disease-related health situation, information plays a key role in helping them understand more about their disease, make more informed decisions about treatment options, and better cope with all the social and psychological impacts incurred by the illness. In recent years, with the rapid growth of the Internet and other new media, people have gained unprecedented access to a vast array of sources of health information other than the traditional sources -- e.g. health professionals, written materials, family and friends – commonly relied upon most often in pre-Internet research. In fact, the concept of an active and autonomous patient who seeks out additional health information and actively participates in the process of making health and medical decisions lies at the core of the “consumerism” movement in health and medicine (Booske, Sainfort, & Hundt, 1999). As early as 1980, some researchers (e.g. Dervin, Harlock, Atwood & Garzona, 1980) advocated a shift to patient-oriented research. With the recent avalanches of health information studies, this call has become more frequent. Vanderford, Jenks and Sharf (1997), for example, have advocated a shift in health communication research from primarily focusing on the influence of physicians on patients’ decisions to patient-centered research that gives more voice to patients’ own
experience. The patient is no longer considered a mere passive recipient of treatment and other medical services. Instead, within the new framework, the patient has been reconceptualized as a self-motivated participant and collaborator, playing an active role in their medical experiences (Brashers, Haas, Klinge, & Neidig, 2000). As a central and able agent, the patient is seen as someone who “seeks out, receives, and uses information from a number of sources and whose experiences shape the way the individual makes decisions” (Vanderford, Jenks, & Sharf, 1997, p. 16).

Rationale for the Study

In the health communication literature, health information seeking and use (ISU) traditionally has not been a major thrust of the field, and there has been a paucity of research directly focusing on how patients seek and use information in various health situations. Instead, information seeking and use has been studied primarily as effects of media health campaigns. These studies looked at how to design media health messages, and how to persuade audiences to comply with the messages in order to change their health behaviors. As Internet activity makes the active patient more visible, and as patients start to take advantage of more available sources, communication researchers have become more interested in studying information behavior in experiential health contexts. As a result, a growing body of patient-oriented work on health information seeking and use has emerged in the previous decade.

Except for a small number of studies that have looked at the effects of health information on decision-making and doctor-patient communication, the majority of these recent studies have focused on factors that lead to information seeking or source use by
patients or consumers. While these studies definitely helped to identify a long list of variables that motivate health information seeking and source use, what has been seriously lacking are studies that view health information seeking and use holistically as a social and psychological process.

Methodologically, most of the available studies are quantitative with data collected through traditional close-ended survey questionnaires. A recent descriptive analysis of all the articles published in the Journal of Health Communication in the past 10 years showed that among 208 empirical studies published, 86% (n=178) used quantitative methods, with half of them using surveys. Of the 35 articles employing qualitative methods, about half used in-depth interviews. Very few studies used discourse analysis, textual analysis, grounded theorizing approaches, and/or ethnographic work (Freimuth, Massett, & Meltzer, 2006). In the typical quantitative study, standard statistical analyses were performed to parcel out predictors that mostly were traditional demographic and structural characteristics such as race, gender, education, and cognitive style. Little qualitative work has been done to reveal the complexity of the process of seeking information by taking into account possible contextual and situational factors that facilitate or constrain embedded information seeking activities.

In these quantitative studies, information seeking, as a key outcome variable, has been measured vaguely with such outcome measures as extent of health information seeking, use of different media, or intention to look for more information. Even when some studies have attempted to find out what types of health information people needed, they mostly focused on disease-related issues (e.g. information on diagnosis, prognosis and treatment options). Little has been known about information seeking and use relating
to important psychological, emotional and social aspects of illness experiences. Nor has much been revealed concerning how patients actually use information obtained, or the ways information helps patients in their health situations.

A review of the literature on consumer health information seeking did reveal some attention to what researchers labeled as health situations but these were usually not patient-defined but rather generalized situations as defined by expert systems (Carlsson, 2000; Rees & Bath, 2000). Usually, these studies have focused on information seeking and use in specific disease occurrences (e.g. AIDS, diabetes, cancer, or heart disease). Cancer patients’ information needs have received the most attention, with breast cancer and prostate cancer as the two most studied cancer sites. While information seeking and use research abounds in these often serious or chronic disease situations that require prompt or ongoing medical treatment, what has been overlooked are various everyday health-related occurrences where people need information to maintain a healthy lifestyle; to help cope with another family member or friend’s illness; or to find affordable health care, just to name a few.

Given the above emphasis of the health information seeking and use literature, communication scholars have called for a series of changes or innovations in research direction. Longo (2005) emphasized the need for empirical work that develops strong conceptual framework or models that could provide the vital theoretical underpinnings for studies of health information use. The bias in favor of attention to communications marked by illness necessitates more attention to everyday, mundane health-related interactions of individuals who are not facing critical illness either individually or in their family (Tardy & Hale, 1998). Patient-centered research must also include
contextualization since the patient’s experience of illness and health care cannot be understood in isolation (Vanderford, Jenks, & Sharf). Methodologically, the narrative perspective is encouraged, because it recognizes the patient’s account as the best way to understand individual experience. Therefore, it is the appropriate approach for painting a highly diversified and complex picture of people’s need for information and information behavior with the help of useful qualitative methods, such as in-depth interviews, participant observation, ethnographic fieldwork, and textual analysis.

If these calls are relatively recent phenomena in the health communication literature, they have been echoed before in library and information science (LIS), another academic field that devotes much effort to information seeking and use research. What distinguished LIS literature from the health communication research is that LIS researchers have reacted to these calls with considerable accomplishments in empirical work. While previous research in LIS has produced a handful of key models and frameworks on information seeking and use (e.g. Kahlthau, 1991; Ellis, 1993; Wilson, 1999; Cole, 1997), the research in recent years has seen movement in a number of new directions. With quantitative work still popular, a growing number of studies have turned to apply more qualitative, rhetorical, hermeneutic, and interpretive approaches to studying information behavior. What merits special attention is that more studies have adopted the inductive grounded theory approach to study information seeking behavior. Of these, however, only a few of them have presented a theory or model as a result (e.g. Ellis, 1993; Jeong, 2004; Prekop, 2002), while many of them aimed only for a generalized understanding of individualized behavior. These studies have typically identified main categories related to information needs, use or seeking strategies, and
they fell short of giving specific definitions of basic concepts as well as presenting the relations between them (Vakkari, 1997).

Another major development is that LIS research has put increasing emphasis on the context and situation of information seeking and use, with “context” becoming what Dervin calls a “foundational construct” (Dervin, 2001). Context has been defined in a multitude of ways; and various contextual factors have been identified as impacting information behavior (e.g. Change & Lee, 2001; Cool, 2001).

Meanwhile, LIS studies have moved to conceptualizations that are more relevant to how information seekers go about seeking and using information in specific situational moments (Dervin, 2001). Dervin’s Sense-Making Methodology has been widely applied in LIS studies as a prime example of this situational approach.

A third trend is that more research studies are looking at information seeking and use from a process standpoint, focusing more and more on activities of seeking and using information. This move to a “verbing” approach, in Dervin’s words, focuses on “moments of defining, seeking, evaluating” instead of attempts to predict information seeking and use primarily based on nouns variables, such as characteristics of seekers, source, institution, and information across time-space (Dervin, 2001, p. 47).

Set at the juncture of health communication and LIS research, this dissertation is an attempt to respond to the calls for more qualitative empirical work to develop conceptual framework or models of health information seeking and use in context. There are two major objectives of this dissertation. First, drawing on the conceptual and methodological developments from the LIS discourse community, this dissertation aims to bring LIS qualitative approaches to bear on health communication that has attended
only to source and channel use. By looking at information seeking and use from a process perspective, this dissertation not only gives attention to all information behaviors embedded in the process, such as informants’ (university and college faculty and students in this dissertation) information needs, the sources and channels they used, the uses or helps they received from sources and evaluation of sources, but also attends to the complexity of the process by identifying possible contextual and situational factors that facilitated or constrained these information seeking and use activities in various troublesome health situations they faced in real life.

The second major objective of this dissertation is to compare and contrast two different qualitative approaches to inductively derived theorizing as applied to the sample of 81 informants. One approach, Schatzman’s grounded theory dimensional analysis, derives from the tradition of Glaser and Strauss’s Grounded Theory methodology that enables us to understand the nature of people’s experiences as they see it. It provides a theoretical account of the general features of the topic under study (Glaser & Strauss, 1967). The other approach, Dervin's Sense-Making Methodology guided situational contingency analysis, has its theoretical roots in the work of Richard F. Carter who called for studying communication as behavior in situated moments of movement through time-space. These two approaches are selected for the differences in the way they each help to accomplish the first objective: holistically studying situated health information seeking and use in context.
CHAPTER 2

REVIEW OF TWO LITERATURES

This chapter aims to review works relevant to this dissertation from health communication and LIS, two fields that study information seeking and use. While the section on health communication tries to summarize the highlights of health information seeking and use research in its relatively brief history, the section on LIS focuses on the new and ongoing research emphases on context and situation of information seeking and use; the process perspective; and the embrace of qualitative approach. As “information” lies at the core of people’s seeking and using activities, it is necessary to briefly address the changing notions of information before going into the details of the two literatures.

The Conception of Information

The history of human information research is characterized by numerous attempts at defining this seemingly simple yet complex concept “information.” It would be outside the scope of this dissertation to give a comprehensive review of all these different conceptualizations. Rather, for the purpose of the dissertation, a brief summary of two key approaches for examining the idea of information should suffice.

*Conception of Information as Thing*
In order to propose a definitional framework for understanding what "information" is, Buckland (1991) identified three principal senses in which the word information is used. "Information as process" refers to the action of becoming informed, adding to one's stock of knowledge or information. It is the individual who becomes "informed" and therefore must accept new knowledge or information as "informing." The element of individual "acceptance" is crucial to the concept of information. "Acceptance" implies that the decision to accept is made based on some legitimating criteria, many of which are the collective agreement of society or of groups such as professions. They may also be patterns and practices that are taken for granted. In the second sense, Buckland (1991) defined information as “knowledge.” Here, "information" refers to an unspecified entity, and what is highlighted is the intangible and unspecified specific element. The third sense in which information is used is "information as thing," the concrete representation of information as knowledge. In other words, any specific instance of "information" qualifies as "information as thing." Buckland (1991) linked information "things" to their context by employing the idea of evidence: “information as thing” becomes evidence in a particular context viewed by a particular information user.

Using this conceptual frame, Bradley (1996) defined health information as whatever people in the health domain think it is. He viewed established concepts of information as "bounded" concepts, defined according to specific dimensions or boundaries. For a concept of information to be "established," sufficient numbers of people need to agree on the boundaries, or what constitutes a particular type of information, including the criteria that make it legitimate. Bradley (1996) saw the established concepts of health information as clustering around disciplines and
professions. As “cultural facts” that are shared ways of understanding and acting constructed by a domain or a society, these concepts of health information can and do change.

Examining Buckland’s three senses of information, we can see that they are all derived from a traditional approach that defines information as something real, existing outside the human being. According to this approach, “information” refers to things external to human consciousness that describes the world and reality objectively. This simplistic transmission approach has incurred abundant criticism in LIS literature, with most of the critics arguing that definition of information-as-thing simply ignores the communication aspect of information seeking and sharing.

Conception of Information as Sense Made and Unmade

One salient criticism that presents itself is Dervin’s Sense-Making Methodology. While not disregarding the information-as-thing conception as utterly useless, Dervin does challenge it as seriously lacking. Sense-Making mandates the “disappearance of the term information as a static, absolute, ontological category” (Dervin, 2003, p. 148), because human interpretation always stands in between the observer and the observed. “Information” can only provide a partial and temporary description of the observed. Instead, Sense-Making attends to “information” as a structural term, and reaches beyond that “for the idea of information as something that the human species makes and then challenges and unmakes and remakes as events move forward” (p. 149). In essence, this interpretive approach defines “information” as sense made and unmade by human beings struggling through time-spaced bounded situations and events. Moreover, in contrast to the traditional research that takes “information” as nouns, and thus tends to privilege the
result of information transmission, Sense-Making treats “information” as verbs and thus focuses on process as well as outcome (Dervin, 2003). The author agrees with this interpretive approach to information and takes it as the definitional framework for this dissertation.

Information Seeking and Use in Health Communication

As mentioned above, there has been a growing body of scholarship on information seeking and use in health communication. A close review can place them in four major categories. While the majority of them attempt to identify various factors that motivate or predict health information seeking or focus on source or channel use, a small number of them are engaged in finding out what information people need or how they make use of it in their medical or health care situations.

Motivational Factors of Health Information Seeking

When one encounters a specific health situation, it is usually of a problematic nature and one may need certain input or information to get through the uncertainty brought about by the often stressful and unfamiliar experiences. In the same situation, despite some basic information routinely provided by health professionals, some patients actively seek additional information and assistance, whereas others deliberately try to avoid them even if they might be helpful. As a result, the factors that make people want to search for more information has been a focus of research for health communication scholars.
**Predisposing, Enabling and Reinforcing Factors as Predictors**

In this body of work, what influenced many studies is a framework consisting of three predicting concepts: predisposing, enabling and reinforcing. The first two were proposed by Andersen and his colleagues (Aday & Andersen, 1974) and the third one was added by Green (1974). Other researchers simply incorporated these concepts as key elements with some variations to develop their own models, such as the PRECEDE model of patient information seeking (Green & Kreuter, 1991), the Comprehensive Model of Information Seeking (Johnson, 1997) and a model that identified the determinants and consequences of patient information seeking proposed by Czaja and his colleagues (Czaja, Manfredi & Price, 2003). A number of studies showed that the three types of factors did influence information seeking behavior and health outcomes in different ways.

Predisposing factors (social and psychological variables existing before the information seeking behavior) include beliefs and attitudes that enhance the likelihood that individuals will want to seek information and medical participation. A desire to actively participate in treatment decisions (Degner, 1997) and to have a clear understanding of the extent to which one’s cancer has progressed and the prognosis for survival (Rees & Bath, 2001) were found to motivate information seeking.

Enabling factors represent the resources that facilitate patients’ access to and use of services. Studies showed that knowledge about cancer and its treatment and familiarity with the medical system encouraged patient information seeking (Meischke & Johnson, 1995; Leydon et al., 2000), so did emotional and social support from family and friends.
(Echlin & Rees, 2002), and the presence of a companion during a physician visits
(Beisecker & Beisecker, 1990; Czaja et al., 2003).

Reinforcing factors include the encouragement patients receive from health
professionals and others for engaging in certain behaviors. Studies showed positive
effects of these factors on information seeking. For example, the amount, specificity and
clarity of information given by physicians (Siminoff and Fetting, 1991), clear physician
answers (Rees & Bath, 2000), and patient satisfaction with physicians’ answers (Czaja et
al., 2003) all led to further patient information seeking.

Demography as Predictors

In order to look at who is more likely to seek health information, some
demographic characteristics have been studied, and their positive associations with
information seeking have been well established. Research studies showed women are
more likely to ask for information (Johnson, 1997; Kaplowitz, Campo, & Chiu, 2002). Well-educated people were also shown to seek more information than less educated ones
(Manfredi, Czaja, Buis, & Derk, 1993; Nair, Hickok, Roscoe, & Morrow, 2000). People
who had a current or past personal cancer diagnosis (Engleman et al, 2006) and those
who had a family history of cancer (Rutten, Squiers, & Hesse, 2006) are more likely to
seek more information than those who did not have similar experiences. Evidence on the
effect of age is somewhat mixed. Beisecker and Beisecker (1990) and Waitzkin (1985)
indicated that older people sought more information from physicians, but Turk-Charles,
Meyerowitz, & Gatz (1997) found the opposite. As for prognosis information, Kaplowitz
et al. (1999) found that doctors perceived older cancer patients as being less interested in
such information than younger patients. Rutten and his colleagues (Rutten, Squiers, &
Hesse, 2006) compared information seekers vs. nonseekers, and found that Hispanics were less likely to search for health-related information than Whites or Asians.

*Cognitive and Psychological Variables as Predictors*

Another group of studies looked at possible cognitive and psychological variables that may predict health information seeking. One of these variables is the need for cognition (NFC), referring to “the tendency for an individual to engage in and enjoy thinking” (Cacioppo & Petty, 1982, p. 116). Williams-Piehota and his colleagues (2003) conducted an experiment to determine whether tailored health messages matched to an individual’s NFC are more influential than mismatched messages in affecting people’s engagement with health behaviors. They found that individuals with high and low NFC tended to derive meaning from persuasive messages in different ways. While individuals with NFC were motivated to seek information actively and think about and reflect on arguments presented to them, individuals with low NFC tended to be less motivated to systematically employ the cognitive effort required to process the information in health communication. Another cognitive variable explored by researchers is the sense of a future vulnerable self. A field experiment by Clarke, Evans, Shook, & Johanson (2005) on seniors’ health information seeking provided support for the idea that thinking or ruminating about oneself, especially one’s vulnerability to a health threat, was critical for motivating information seeking and taking action.

Under Witte’s Extended Parallel Process Model (EPPM), perceived risk has been conceptualized as a motivational factor in individuals’ tendency to seek information (Rimal, Flora, & Schooler, 1999). However, what it actually motivates individuals to do is still unclear. In Rimal’s (2001) more recent study of information seeking by
cardiovascular disease patients, a significant interaction between risk perception and self-efficacy was found to motivate individuals to think about cardiovascular diseases, use of health information (interpersonal discussion and use of printed health information as two measures), and knowledge acquisition. People who perceived low risk with low efficacy made the least use of health information, while those associated with high risk and high efficacy made the greatest use of health information. In addition to risk, anxiety and fear were also shown to have significant nonlinear effects on desire, request, and receipt of quantitative information. Those who had greater anxiety and who needed to avoid thinking about death wanted, requested, and received significantly less information (Kaplowitz, Campo, & Chiu, 2002).

**Contextual Factors as Predictors**

While demography and psychological variables may predict information seeking to some extent, they only comprise part of the whole picture. In a recent review of the literature, Mills and Sullivan (1999) identified a number of studies that looked into the role of some disease-related contextual factors in predicting information needs and activity. These factors include time since diagnosis, type of cancer, type of treatment, and stage of disease. For instance, the time since diagnosis influences the type of information needed and where and how intensely the information is sought (Mills & Sullivan, 1999). Other contextual factors associated with more information seeking are concern about getting cancer and having a family member or friend treated for cancer (Johnson, Meischke, Grau, & Johnson, 1992). Contextual factors related to patients’ medical care situation also have either a positive or negative effect on information seeking. Having a supportive physician, seriousness of illness, and number of hospitals visited has been
shown to influence both information seeking and psychological and behavioral outcome variables (Johnson, 1997; Beisecker & Beisecker, 1990).

Comparison of Different Predictors in Sense-Making

In a different approach from most traditional studies, a handful of researchers used Dervin’s Sense-Making Methodology to study information seeking in health contexts such as the lived experience of adolescent illness (Cardillo, 1999); the information needs of pregnant; drug-addicted women (Dervin, Harpring, & Foreman-Wernet, 1999); people with multiple sclerosis (Baker, 1998); and a communication campaign for HIV-AIDS (Brendlinger, Dervin, & Foreman-Wernet, 1999). From a user’s perspective, Sense-Making attends to information seeking as a communicative process that unfolds in time-space-bounded situations. The basic metaphor of Sense-Making is the situation-gap-help triangle. According to this construct, gap-bridging refers to the process where an individual draws on cognitive and affective resources in order to close the gap being faced in a problematic situation. The outcomes of the gap-bridging process are described as uses, further specified as helps or hurts. Thus, the Sense-Making Methodology provides conceptual and methodological tools for studying the processes of information use. In a typical Sense-Making information study, the researcher not only tests which variable accounts for most of the variance in terms of predicting information seeking and use, but also makes comparisons among different groups of predictors, such as across-time-space demography and time-space-bound situational factors. For example, in a study of information seeking by blood donors, three types of predictors -- across-time-space measures, a priori time-space measures and time-space-bound measures -- were compared with regard to how well they predict donors’ information needs. Results
showed that time-space-bound measures accounted for an average of 17% of the variance, much higher than the average 3% accounted for by the other two predictors (Dervin, Nilan and Jacobson, 1982).

*Media Use as Predictor*

In most of the studies reviewed above, the theoretical framework assumes a situation-specific approach in which the patient’s serious health situation dictates his or her information needs (Carlsson, 2000; Huber & Cruz, 2000). However, the situation-centered framework of health information seeking does not make an attempt to study people who search for health information irrespective of their immediate situation. To address this need, Dutta-Bergman (2005) explored the role of communicative variables instead of standard demographic characteristics on autonomous health information seeking beyond the doctor as the primary source. Emphasizing the extent to which participation in the different categories of communicative activities influences health information seeking, his research revealed the role of health consciousness, referred to as “the extent to which health concerns are integrated into a person’s daily activities” (Jayanti & Burns, 1998, p. 10), as a mediator between global media use and health information seeking. Two of his studies showed that use of active communication channels, such as newspapers, interpersonal networks, and the Internet, produced greater health consciousness in people, which then motivated them to seek more health information (Dutta-Bergman, 2004; Dutta-Bergman, 2005).

*Information Needs in Health Situations*

Given the complex and risky nature of a health situation, the patient is concerned about a variety of issues and may need additional information to understand it. In
addition, the fact that people face different health situations suggests that patients may need vastly different information in consideration of their individual characteristics and experiences. As a result, an important issue for health professionals is to provide the right kind of information at the right time to people with different information needs. Research studies in health communication have been trying to identify what information patients actually need as well as variables that can help predict those needs.

Information Needs of Patients and Their Family

Because cancer is one of the leading causes of death in the United States, it is natural to expect that the subject of cancer patients’ information needs would form a large percentage of research. Studies identified a vast array of information needs in a terminal illness situation, ranging from knowledge about the progress of a disease, treatment options, the likelihood of a cure, prognosis, coping strategies, and self-care, to how the illness experience will affect the patient’s personal and social life (e.g. Feldman-Stewart, Brundage, Nickel, & Mackillop, 2001; Leydon et al., 2000; Stewart, D. E., et al., 2000). Kutner et al. (1999) summarized these needs into two categories: disease-oriented and illness-oriented information, suggesting that information need goes beyond the biology of the disease to include issues related to how the illness will affect one’s life personally and socially. In fact, illness-related issues, such as the risk to family, impact on family relations, financial burden, and effect on social life, were considered as equally, if not more, prominent by study participants. Broz’s study (2003) of cancer patients also found that affective-related needs, quantity-related needs, time-related needs, and previous experience with cancer (self or other) were listed as important in addition to a general lack of information.
When one member of a family is afflicted with a terminal illness, the disease often becomes the center of the family, influencing many different aspects of their lives. As active participants in their loved ones’ illness experiences, family members have substantial needs for different information in order to care for their loved ones. However, the great majority of the studies reviewed here concentrated on the information needs of the patient, the needs of family members is a relatively under-researched area. Among the small number of studies addressing this need, many focused on the information needs of family members of breast cancer patients at different points in the progress of the disease. Studies have assessed the information needs of women with breast cancer and their family members during diagnosis (e.g. Northouse et al. 1997, Kilpatrick et al. 1998a), therapy (Galloway et al. 1997, Graydon et al. 1997) and further from diagnosis and treatment (Degner et al. 1997, Luker et al. 1996). Northouse et al. (1997) explored the information needs of 265 spouses of women undergoing breast biopsies. They found that spouses wanted information similar to their wives, such as the biopsy procedure, potential diagnoses, disease processes, treatment options, prognoses and physical and psychological aspects of breast cancer. Husbands also wanted information on how to best support their wives. Another study showed that the information need most frequently identified as very important by the daughters of individuals with breast cancer was information about their personal risk of breast cancer. Other highly rated needs included risk factors for breast cancer and early detection measures (Chalmers, Marles, Tataryn, Scott-Findlay, & Serfas, 2003).
Demography and Information Needs

Similar to the research on what motivates information seeking, studies that look at what specific information people want also explored demographic characteristics as the most likely predictors. While demography was shown by many studies to trigger more information seeking, its effects on information needs seemed mixed across studies. One study suggested that females were more likely than males to inquire about cancer screening/diagnosis, support services, and psychosocial issues, but they were less likely to seek specific cancer treatment information. Older patients were more likely than younger patients to seek specific treatment information, but they were less interested in support services, psychosocial issues, and prevention/risk factors. Compared with White callers, Hispanics and most minorities preferred support service information, while African Americans had more questions related to psychosocial issues (Squires et al., 2005). However, more studies did not find evidence for the positive association between demography and information needs. In a survey on information needs by men with prostate cancer, Feldman-Stewart and his colleagues (Feldman-Stewart et al., 2001) found large variation in the number of information items deemed necessary by patients to make a treatment decision and little agreement on the need for most individual items. This led to their conclusion that the process of informing prostate cancer patients needs to be flexible and able to accommodate a wide range of patients' information needs. This finding was echoed by other studies using different methods. For example, interviews with terminal ill patients failed to reap significant associations between easily identifiable patient characteristics and patient concerns, indicating that no profile of characteristics
readily predicted individual information needs (Kutner et al., 1999). The researchers believed that the inability to predict needs based on patient characteristics may help explain the previous findings of discrepancies between physician and patient expectations, with the former offering more disease-oriented information and the latter needing more on illness-oriented issues.

**Psychological Factors and Information Needs**

Compared to demography, studies on the predicting power of disease-related and psychological factors proved more fruitful. Distress and disease severity were found to influence information needs and decisional preferences of women with ovarian cancer. In general, the more psychologically distressed the women, the more information they wanted about coping strategies; the more serious the illness, the more shared decision-making was desired (Stewart, D. E., et al., 2000). The differences in processing information and coping with threats have also been examined in the monitor/blunter paradigm of personality psychology. This paradigm has conceptualized monitoring/blunting as a coping dimension or style, which categorizes individuals as monitors (information seekers) or blunters (distracters) on the basis of how they deal with threat-related cues (Miller, 1987). Previous studies indicated that in an avert event, monitors tended to seek and monitor information whereas blunters avoided or distracted information (Miller, 1987), and that people engaged in cognitive avoidance and blunting strategies generally showed less stress and arousal than those engaged in cognitive scanning and monitoring (Holmes & Houston, 1974). Applying the monitor/blunter paradigm, Baker (1998) compared the information preferences of women with multiple sclerosis and found that both monitors and blunters wanted information but differed in
what they wanted and when, with monitors wanting both general and specific information about their disease earlier and blunters wanting general information after coping with the disease for several years. Ong et al. (1999) found similar preferences among monitors for specific information, and for participation in medical decision-making and question-asking than among blunters.

Information Needs along the Disease Journey

Taking a different angle, a few studies looked at information needs throughout the course of the disease journey. Instead of breaking a health situation into separate points of time, this approach looks at individuals’ illness experience as a process in which their information needs may change in time as they experience the disease. At different stages, different issues emerged as critical. An example of this process-oriented perspective was Rees and Bath’s (2000) study of the information needs of women with breast cancer. The study provided evidence that women had distinct information needs throughout their breast cancer journeys. Specifically, at diagnosis, these women wanted information about the likelihood of cure, treatment options and the stage of the disease. As they embarked upon surgical and therapeutic regimens, their most urgent need was treatment information, information regarding investigative tests and recurrence. Around 2 years post-diagnosis, they still wanted information on the likelihood of cure but now also wanted information concerning the risks to other family members of getting cancer and information about self-care behavior. Information needs therefore are not static but change with time. The results were supported in a study conducted by Degner and his team (1997) who proposed that information about chances of cure was more important to cancer patients at diagnosis, and information about self-care was more important further
from diagnosis. Stage in the cancer care continuum was also found to be an important determinant of information seeking, highlighting the importance for health professionals to understand cancer patients’ health and treatment status when providing information. For example, compared with patients in treatment, patients in recurrence were more likely to seek specific treatment information; patients not in treatment were more likely to seek medical referral information; and patients in post-treatment were more likely to seek screening/diagnosis and prevention/risk factor information (Squires et al., 2005).

 Channels and Sources for Health Information Seeking

Channel or source selection has been a key area of research in health communication literature. There are many diverse sources for seeking health information, with different populations and different ages using different strategies (Muha et al., 1998). Empirical studies in health communication also provided substantial evidence that patients did consult a variety of sources for information other than their health care providers. However, researchers used different ways to distinguish these sources. One useful way of categorizing the sources is provided by Napoli (2001), who offered three categories: formal sources (family doctor, other health professionals), informal sources (friends and relatives) and commercial and media sources (television, newspapers, etc.). Similarly, Warner and Procaccino (2004) also used formal and informal categories, but proposed hybrid as the third category. They further distinguished the channels by whether they are interpersonal (primarily face-to-face) or mass media (print and electronic) in nature. According to them, formal channels include physicians and other health professionals (interpersonal), health organizations, librarians (interpersonal), and various media promoting health information. Informal channels include friends and relatives
Hybrid channels include health resources on the Internet that may be formal, such as NIH site, or informal, interpersonal, and interactive sites, including online support groups and bulletin boards for specific health topics.

Source Preference and Its Criticism

Previous research on information sources or channels has focused on source preference by individuals or patients. Across different population and disease types, the order of preferences for sources varied from study to study though doctors remained at the top of the list in many studies. In a general population study, Cangelosi and Markham (1994) compared institutional with personal and media health sources. They found that respondents identified personal sources (physicians, other professionals, spouses, etc.) as the most important, followed by media (television, pamphlets, etc.) and institutions (hospitals, fitness centers, etc.). A different result was found when Talosig-Garcia and Davis (2006) studied the sources used by minority women with breast cancer. The top 3 sources the women preferred were books, brochures, and pamphlets; doctor or other health professionals; and spouse or partner, family members or friends. Yet, another view emerged from Broz’s (2003) study of cancer patients’ involvement in cancer care. Four major categories were provided, with several specific sources listed under each category. Media sources were the most frequently cited sources, with the Internet, books and magazines being the most consulted media sources, followed by interpersonal sources (friends, family and acquaintances), and cancer organization sources (the American Cancer Society, the National Cancer Institute, and cancer hospitals/centers). Surprisingly, professional sources (primary care physician, nurse and physician’s assistant) were last. The author suggested that the limited time available for patients to interact with
physicians might explain the low ranking of doctors. In the recent years, the Internet has made tremendous gains over other forms of media in information provision. As a result, it has gained prominence as a resource for health information, especially cancer information (Bright et al., 2005). The NCI’s 2003 Health Information National Trends Surveys (HINTS) revealed extensive use of the Internet as a source of cancer information. Among adults who had looked for cancer information in the past, 48% looked on the Internet first while only 10.8% turned to health care providers.

Reviewing the source preference literature, critics pointed out that many studies used channels and sources interchangeably and thus failed to recognize important distinctions between them. According to classic communication models, the source refers to the producer or designer of the message while the channel is the vehicle through which the message reaches the receiver (Schramm, 1955). When talking about the relationship among different channels, Chaffee (1986) warned against regarding different channels as being competitive with one another. Rather, from the receiver's viewpoint, channels may be better seen as either convergent in providing the same or overlapping messages or complementary, in which case information is available in one channel but not in another. While in many case the information matters more than the channel carrying it, people do show preferences for particular types of channels, sometimes with respect to specific kinds of information, and other times as a lifestyle choice (O’Keefe, Boyd, & Brown, 1998). Some people are addicted to television as an information or entertainment medium while others rely on newspapers or radio for most information. However, these preferences are not usually exclusive; instead, we often choose a mix of channels based
frequently upon habit, and shaped by our social and cultural situation, ease of access, awareness of alternatives, and probability of needs being met (McQuail, 1994).

The Concept of Channel Repertoire

Heeter and Greenberg (1985) offered a construct of channel repertoire to describe channel selections in terms of the number of different channels used, the mix among them in terms of content types, and the patterns with which the same person uses different channels. Reagan (1996) further extended the repertoire concept to cross-media channel situations. He found that individual choice of media channels for information varied by topic and that the degree of interest in the topic might play a role in channel selection in that greater interest in a topic was associated with the use of more information channels. The finding was supported by recent work in health information by Engelberg, Flora, & Nass (1995) that indicated that knowledge about AIDS is facilitated by heavier use of print than electronic media because print media is more involving. However, in his work, Reagan still used the traditional splits of media such as television versus newspaper versus radio, without considering possible clusters or combinations of channels in selection that could better reflect the similarities and overlaps among different channels. To explore the correlations of various channels, O’Keefe, Boyd and Brown (1998) interviewed 1,963 adults to find out what channels they used to obtain information on preventive health care. An exploratory factor analysis identified three groupings of channels. The first set of channels involved television genres of news and information, entertainment, and commercials. The second set highlighted traditional print media of newspaper and magazine. The third repertoire is what they called the personal media, a mix of family and friends, health professionals, books and educational materials
that “appear to be a more information-rich and content-specific environment, potentially
classified by more active information seeking” (p. 31).

Demography and Source Selection

Several broad conclusions about demographic characteristics and people’s source or channel selection can also be drawn from reviewing the source preference literature.

When measured by the number of sources consulted, age and education seemed to have the strongest association with source selection. While patients under 40 contacted more sources than older ones, patients with more education were also more likely to contact multiple sources (Muha et al., 1998; Carlsson, 2000). The range of sources used also appeared to be broader in younger patients (Rutten et al., 2005). In terms of the types of sources used, Carlsson (2000) found a significant correlation between education level and information seeking from the Internet, medical books and telephone help lines. Older patients showed greater reliance on information provided by cancer specialists or physicians than did younger patients (Rutten et al., 2005). While Asians and Whites demonstrated similar preference for cancer information from various sources, Asians were significantly more likely to prefer print materials and less likely to use a health care provider as the primary source (Nguyen & Bellamy, 2006). In a study on the use of Internet for health information among 6,019 callers to the National Cancer Institute’s (NCI’s) Cancer Information Service (CIS), Bright et al. (2005) found that White and younger patients used the Internet more than African Americans and those older than 60. Exceptionally high use of the Internet was reported by family and friends of cancer patients (81%), and those with post-college education (85%).
Health Orientation and Source/Channel Selection

In recent years, health orientation has emerged as a critical concept in the explanation of health behaviors in the consumer marketing literature (Burns, 1992; Moorman & Matulich, 1993). Researchers defined health orientation as “a goal-directed arousal to engage in preventive health behaviors” (Moorman & Matulich, 1993, p. 210). Thus, a person with a strong health orientation is motivated to take an active role in the issue of personal health and to actively search for relevant health information. (MacInnis, et al., 1991; Moorman & Matulich, 1993).

Seeing the limitation of demographic variables in predicting source selection, researchers started to explore the possible effect of health orientation on choosing channels for information. At the same time, they were careful to take into account the characteristic of communication channels. Communication channels have been categorized into different groups based on their information and entertainment orientations, with print media, such as newspaper and magazine, considered as informational, and television and movies as entertaining. Health conscious individuals were motivated to find information about issues of health, and impelled to use those channels with an information orientation (MacInnis, et al., 1991; Moorman & Matulich, 1993). Another categorization of communication channels is based on active–passive orientations (Becker & Dunwoody, 1982; Clarke & Fredin, 1978; Robinson & Levy, 1996). While some channels are disposed toward active information orientation, others lend themselves to gathering information passively (Dutta-Bergman, 2004). Newspapers and magazines are informational and considered actively oriented because of the intellectual involvement and focused attention it requires of readers (Becker &
Dunwoody, 1982; Robinson & Levy, 1996). Interpersonal communication is also actively oriented in the context of health information seeking because an individual has to actively communicate with others in gathering the information (Dutta-Bergman, 2004). In contrast, television and radio are considered passive, characterized by less intellectual involvement and required cognitive effort. In addition, they often only provide the background for a wide range of people’s activities (Vivian, 2002).

Applying the information vs. entertainment and active vs. passive categorizations, Dutta-Bergman (2004) compared different media types as sources of health information within the context of health-oriented attitudes and behaviors. The study demonstrated that informational and active communication channels, such as print readership, interpersonal networks, and Internet communication, served as primary health information sources for health-conscious and health-oriented individuals with strong health beliefs. In contrast, individuals who are not health-oriented turned to passive media channels, such as television and radio, for health information.

*Uses of Health Information*

Previous research on health information seeking has put considerable stress on the determinants of information seeking and source/channels selection. While it is important to know what motivates individuals to seek information, as well as determining what it is they want and where they go to get it, it is equally critical to understand how they make use of the information obtained and how the information helps them in their health care situations. Such data would provide us with a better and complete picture of information seeking and use. Several benefits of information for patients - cancer patients in particular - have been identified in previous research: more knowledge about their diseases and
treatment options (Muha et al., 1998; Shim, Kelly, & Hornik, 2006); increased patient involvement in decision making and greater satisfaction with treatment choices (Cassileth, Zupkis, Sutton-Smith, & March, 1980); better coping ability during diagnosis, treatment, and post-treatment (Johnson, Nail, Lauver, King, & Keys, 1988); reduced in stress and anxiety (Rainey, 1985; Barry, Cherkin, Chang, Fowler Jr., & Skates, 1997); more information sharing with physicians (Manfredi, Czaja, Price et al. 1993; Broz, S. L., 2003); and improved communication with family members (Johnson & Adelstein, 1991).

Impact on Cognition, Psychology and Behaviors

Among the benefits mentioned above, the impact of information on patients’ decision-making regarding medical care has stood out as a key focus of research studies. Under the traditional doctor-centered framework, physicians were supposed to offer relevant information to patients and make critical medical decisions for them, whereas patients were merely passive recipients of the information and decisions. With the shift to a more patient-centered model, patients are considered able and autonomous agents and their active participation in medical care is valued (Charles, 1997; Lambert et al., 1997). There are various ways that individuals can participate more in their health care situations, such as seeking health-related information, sharing in decision-making, and having more knowledge and power in their consultations with physicians (Cahill, 1996). To participate meaningfully and jointly make decisions regarding their own treatment, they must have useful and relevant information so that they can form opinions and discuss them with physicians. In fact, Saino, Eriksson and Lauri (2001) defined participation in terms of information, such as asking questions, obtaining and providing information, and understanding alternatives. Study results demonstrated that a lack of
information hindered patient participation in decision-making (Sainio et al., 2001) and led to feelings of powerlessness due to the inability to participate (Nordgren & Fridlund, 2001). On the other hand, having additional information made patients feel more knowledgeable and more able to understand and discuss treatment options with doctors (Muha et al., 1998). In a 1996 telephone survey, 80% of CIS caller surveyed reported that the information they received affected them positively by providing them with reassurance in making decisions (Thomsen & Ter Maat, 1998). Broz’s (2003) recent study found that having and sharing information with physicians enhanced patients’ participation efforts, with the evidence that about two thirds of the respondents felt they participated more than usual when they shared with physicians information from CIS, and about half felt they participated more than usual when they had information from other sources to share.

In addition to decision-making, the psychological well being of patients has also been well documented to be positively influenced by additional information seeking and patient participation. According to Lazarus and Folkman’s transactional model of stress and coping, information seeking was identified as the most commonly used coping strategy when people are faced with limited information about a stressful event (Lazarus, 1993). Advancing the discussion, Davison et al. (1995) considered information as a form of cognitive control because it allows an individual to interpret the aversive event and take actions as a means to reduce the threat involved. In the context of health communication, information seeking behaviors can be understood as an “attempt to gain control over health-related events” through a process designed to meet the individual's need to "cope cognitively with change" (Johnson & Meischke, 1991. p. 748). This
conception is consistent with a body of literature that has found considerable evidence that people derive physiological and psychological benefits from enhanced perceptions of control over their health (Broz, 2003; for reviews see Brenders, 1989). In a study, most breast cancer patients sought outside information as a means of coping with illness, while relying heavily on their physician’s advice in making treatment decisions (Swaney, Longo, & Radina, 2003). Studies of patients with chronic conditions also showed that patient participation promoted psychological well being, as represented by reduction in anxiety and depression (Barry, Cherkin, Chang, Fowler Jr., & Skates, 1997; Greenfield et al., 1985).

Seeking health information also has positive effects on behavior outcomes. A study on cancer patients clearly showed some associations between cancer information scanning and seeking lifestyle behaviors. Those who scanned and sought information were more likely to engage in healthy behaviors such as eating fruits and vegetables, and exercising weekly. Besides, both information scanning and seeking were associated with cancer screening behavior (Shim, Kelly, & Hornik, 2006). Similar results were found by Warner and Procaccino (2004) in a study on women’s health information seeking in which 80% of 104 women used the information to improve the way they eat, and 65% of 103 used the information to improve the way they exercised.

**Sense-Making Derived Helps of Health Information**

Applying Dervin’s Sense-Making Methodology and the focal situations-gap-use triangle metaphor, a few studies compared the predictive power of situational measures, such as situation movement state (the ways that people see themselves as blocked or stopped in a specific situation), situation clarity, situation importance, and past
experience with demographic measures such as age, gender and race in terms of information seeking (represented by questions asked) and use (translated into the helps and hurts of information). Content analytic procedures produced a set of help categories tapping how information facilitates or hinders one’s movement in a health situation from a process viewpoint. In addition to the traditionally posited making decisions and emotional support, people also assess information as helping them get skills, get motivated, get control, avoid/get out of a bad situation, and get support and confirmation, etc. An exemplar study was conducted of 24 patients on their last visit to a doctor. Significant relationship was found between situation movement state and information uses. Respondents in Decision State reported getting more help from information by identifying, finding directions, planning and arriving; respondents in Worry State reported more use in getting away from bad feelings and seeking the road ahead; and respondents in Observing State reported more help in avoiding bad situations (Dervin, Harlock, Atwood, & Garzona, 1980). Another study on 80 blood donors sought to identify the association between question asked and information use. They found that respondents who asked questions focusing on their self-control and bodies more likely reported information as helping them in terms of “got started/going,” whereas those who inquired about pain and the donating process were more likely to cite “avoided a bad situation” as the use of information (Dervin, Nilan, & Jacobson, 1982). Williams, Nicholas and Huntington (2003) more recently used the Sense-Making approach to look at the use of health information kiosks. The study showed that reassurance appeared to play a major role generally in consultations with people’s physicians. Their findings indicates that one of the patients’ major expectations when visiting their doctors is to
receive social and emotional support, and that people use information from the doctors to receive reassurance that the health threat they face is not as serious as it seems.

Summary of the Review of Health Communication Literature

In summary, the research on information seeking and use in health communication has centered on two major issues: the determinants of information seeking and source or channel use. There has been a lack of attention to contextual and situational factors that influence information seeking behaviors, and the uses of information has remained an understudied area.

Information Seeking and Use in LIS Literature

This section reviews the research on information seeking and use in LIS literature, focusing on a few key issues that have received considerable attention and led to significant developments in the LIS community but have largely been unattended in health communication research. This section first looks at information seeking and use from a process perspective, then summarizes the most recent and substantial developments in the relationship between context and information seeking. This section will also attempt to distinguish the concept of “context” from “situation”, and conclude with a discussion of the situationality of information seeking.

Information Seeking as a Process

In 1986, Dervin and Nilan published their seminal ARIST review. This publication has had far-reaching influence on information seeking and use research in LIS. In the article, they noted a paradigmatic shift of the research from a system-centered approach to a user-centered one that focuses on cognitive activities, subjective
information, situationality and qualitative research. Since this observation, studies following the cognitive approach in information needs and use research have proliferated. At the center of this approach is the notion that information is “subjectively constructed” by the individual who is seeking information (Dervin & Nilan, 1986). In relation to this, information is also constructed “piece by piece” in a process with a beginning and an end (Cole, 1997). Researchers following this approach attempted to explain variations in information behavior by individuals’ characteristics or attributes that are separated from the context in which information behaviors are embedded. (For a detailed review of the cognitive approach and other conceptual frameworks in information behavior, see Pettigrew, Fidel and Bruce, 2001). These studies developed numerous models of information seeking, demonstrating that information seeking involves process(es) or stages that individuals experience with differing but consistent patterns of behaviors (Pettigrew, Fidel, & Bruce, 2001). A few key process models are briefly reviewed here. (For more models of information seeking, also see Wilson, 1999).

**Key Process Models of Information Seeking**

Belkin (1980) developed an ASK (anomalous states of knowledge) model about information seeking. From a process perspective, this model could be interpreted as a series of stages that an information seeker goes through. At the beginning, a person encounters a situation that is problematic in some aspects. Given the problematic nature, the individual recognizes a gap or anomaly between his knowledge about the problem and what he needs to know to solve it. Accompanied by a feeling of uncertainty, he is impelled to seek relevant information. Finally, the problematic situation is resolved when an intermediary, such as a librarian, provides the needed information.
Perhaps the most influential process model from the user’s perspective was Kuhlthau’s ISP (Information Seeking Process). According to the author, the ISP is the user’s “constructive activity of finding meaning from information to extend his or her state of knowledge on a particular problem or topic” (Kuhlthau, 1991, p. 361). Attempting to address the whole experience of information seeking, the ISP identified six stages based on a series of five studies of students and academic and public library users: initiation, selection, exploration, formulation, collection and presentation. What distinguishes ISP from other models is that it incorporates the cognitive, affective and behavioral aspects of information seeking. Thoughts of the individual vary from stage to stage, with corresponding feelings and actions. For instance, at the initiation stage, when the user becomes aware of a lack of knowledge, he shows feelings of uncertainty and apprehension and his major task is to identify the information need. While at the stage of formulation, the user tries to select ideas from the information obtained to “form a focused perspective” of the encountered topic or problem. His uncertainty is diminished and confidence increased.

Another well-cited model is Dervin’s Sense-Making Methodology with the situation-gap-use/help triangle as the central metaphor (Dervin, 1983; Dervin and Nilan, 1986; Dervin, 2003). A situation in time and space defines the context in which information needs arise; a gap defines the difference between the problematic situation and the desired outcome, also represented as the information need; use reflects the consequences or outcome of sense-making process. Another key concept is that of a bridge that helps to close the gap (Dervin, 1983). In attempting to interpret this triangle as a process of information seeking, the individual is immediately confronted with a gap that
raises questions or results in information needs. At that point, the sense or meaning in the situation “runs out or breaks down” (Dervin and Nilan, 1986, p. 21). In an attempt to reconstruct sense or meaning, the individual first tries to define the gap, and then engages in information seeking in order to bridge the gap using the resources available in the environment. As a result, new sense or meaning is constructed that will help the individual to move forward in the situation.

Based on the work of the three previous authors, Cole (1997) proposed his information process model after studying 45 history Ph.D students’ information seeking behaviors. His model has five stages: opening of the information process, representational activity, searching for corroborating evidence, closing of the information process, and effect of information process. Study results showed that these stages took place sequentially, though sometimes separated by long periods of time. The special contribution of this model, as the author noted, is the identification of the unconscious or semi-conscious behavior related to the opening process. While the previous models begin when the individual becomes aware of a gap in knowledge or understanding, Cole’s study provided some evidence for the existence of information seeking that is “pre-awareness” by showing that the opening stage goes through a gradual process of its own.

Following the cognitive framework, Brown (1991) identified three dimensions of information seeking behavior in her process model: conditions, context and process. Conditions consist of exposure (to information stimuli) and discrimination (evaluation of information need). Context refers to the attributes of the information seeker, such as the self, role, and environment, with the self (physiological, cognitive and affective needs of the user) as the focal element. According to her conceptualization, the information
seeking process unfolds as follows: When an individual is constantly subjected to
information stimulus, she gains her cognitive attention. The individual then enters into a
process of evaluation to decide if the need is satisfied or if it creates a gap. Once the
decision to seek information is made, the seeking process involves finding out where and
how to seek information, including what sources to use and what strategies to adopt.
What sets Brown’s model apart from others is her viewing information seeking as a
“learning and development process”, as noted by Pettigrew et al. (2001, p. 51). Since an
individual’s cognitive and affective attributes that affect his/her information behavior
changes as he/she grows in age, Brown (1991) argued that information seeking behavior
also develops in response to those changes in the attributes.
Consolidating a few models of information seeking, Wilson (1999) proposed a
revised version of his 1981 model of general information behavior as a nested model. The
focus of the model is the context of information need represented by three groups of
variables - person, social role and environment, and information-seeking behavior that
include the search behaviors defined by Ellis (1993). It also includes a set of intervening
variables (psychological, demographic, role, environment, and source characteristics) that
may serve as facilitators or barriers to information seeking. Different from the old model,
Wilson also incorporated three theories from other fields in seeking to explain the
activating mechanism between context and information seeking behaviors. For instance,
stress/coping theory is added to help explain why some needs don’t trigger information
seeking whereas risk/reward theory may shed light on why an individual prefers a certain
source or channel to others.
Summary of the Process Models

In summary, the models above have in common the fact that they all emphasize the importance of cognitive activities and the role of individual attributes in explaining information seeking behaviors. The models of Belkin, Kuhlthau, and Cole focus on mainly individual characteristics independent of context, while Brown and Wilson’s models explore the effects of different aspects of context (personal, social role and environment). Dervin’s Sense-Making Methodology perhaps is unique in that it addresses all types of contexts, cognitive and social alike. As a framework for exploring the totality of information behavior, Wilson (1999) commented, it is in effect a “model of methodology, rather than a model of a set of activities or a situation” (p. 257). Its focus on situationality will be addressed in more detail in a section below.

Information Seeking in Context

The subject of context has received tremendous attention in LIS literature over the past decades. As a multifaceted and multi-dimensional phenomenon, context has been a topic of scholarly debate in the field with no existing consensus on how to define the term. Most often “context” and “situation” are used interchangeably with no conceptual clarity. When scholars try to make a meaningful distinction between the two, they usually approach them differently (e.g. Sonnenwald, 1999; Allen, 1997). Broadly speaking, context is considered as background for something that the researcher wants to understand and explain (Pettigrew, 1987). In practice, context usually refers to any factors or variables that are seen to “affect individuals' information-seeking behavior: socio-economic conditions, work roles, tasks, problem situations, communities and organizations with their structures and cultures, etc.” (Talja, Keso, & Pietilainen, 1999, p.
Dervin (1997) offered an oversight of the term, showing how context is used by scholars from different ends of the spectrum on the bases of different paradigms. Though difficult to define, context has gained prominence with its critical role in influencing information seeking behaviors. In fact, as Kuhlthau put it, “To neglect context is to ignore the basic motivations and impetus that drives the user in the information seeking process.” (1999, p. 15)

Theoretical Approaches to Context

Despite the seemingly indefinable nature of context, past and present researchers have invested considerable energy in developing different theoretical approaches toward it, attempting to identify its different dimensions and levels in the information seeking process, and seeking to understand its relationship with information seeking behavior.

a. The “objectified” vs. “interpretive” approaches

Discussing the many meanings of context at a metatheoretical level, Talja, Keso, and Pietilainen (1999), identified and compared two different approaches to context: the “objectified” and the “interpretive” approaches. Their work was based on their understanding of context in business, information, and cultural studies environments. Within the objectified context framework, context refers to objective reality. While acknowledging that information seeking and use are situational, the focus of research remains identifying patterns of behaviors, revealing process or developing models of information seeking. For this purpose, studies attempt to relate specific variables - social, cultural, personal and situational factors - to particular information seeking behaviors. These factors are “conceptualized as discrete and separate entities (dependent and independent variables) which constrain and facilitate individuals' behavior in various
ways” (Talja, Keso, & Pietilainen, 1999, p. 753). Thus, contextual factors serve to provide a background for the study of individuals’ information behavior, instead of pointing out “how contextual knowledge is” (p. 753). In the interpretive approach, context refers to the site where a phenomenon is constituted as an object of study. Thus, contextual factors are not understood as distinct and separate entities that have different effects on the research object, but as a carrier of meaning that cannot be separated from the “holistic theoretical perspective from which the research object is conceptualized” (Talja, Keso, & Pietilainen, 1999, p. 752). As a result, the major focus of an interpretive information seeking study is to describe and explain meanings and values people attach to information seeking, their information environments and the various information and communication technologies (ICT's) that can be used as tools in information seeking.

The difference between these two approaches to context is also evident in how they understand the nature of research data and how research data are used. In the former approach, research data are usually analyzed as facts of an objective reality. Data consist of documents “which contain more or less truthful statements about what has happened in reality or about participants' experiences and cognitive processes” (Talja, Keso, & Pietilainen, 1999, p. 759). In the interpretative framework, context is considered as the crossroads where the researcher, as influenced by a particular theory, and the data intersect. Research data are analyzed not as facts, but as representation of social reality, containing particular kinds of interpretations about the nature of reality and different phenomena. Rather than finding out what variables predict information seeking behavior, researchers are more interested in finding out how reality, or certain versions of reality, is produced in the data (Talja, Keso, & Pietilainen, 1999).
Most information needs and seeking studies adopt the objectified notion of context, which offers a few advantages. Focusing on various contextual factors, researchers first can show readers how the phenomenon studied is connected to reality. Secondly, identifying various predictor variables helps to bring the multiple aspects of the researched phenomenon into sight. Thirdly, they also reduce the variety of factors relevant to the research object, thus making it possible to “detach the phenomenon under study from the cultural flow of everyday life, so that it can be described and analyzed with the help of scientific concepts” (Talja, Keso, & Pietilainen, 1999, p. 754).

However, critics questioned the “natural attitude” this objectified approach takes toward information seeking and use. It implies that language describes reality objectively. Contextual factors are considered separated from the object of research and their effects are taken as unproblematic. As the definitions and meanings of these contextual factors vary from researcher to researcher, from study to study, it is very common that each researcher develops his or her own model of the variables affecting information seeking behavior, resulting in a lack of continuity and clarity in the understanding of context across different studies (Talja, Keso, & Pietilainen, 1999).

b. The fields vs. pathways approaches

Johnson et al. (2006) presented another two conceptions of information seeking in context: fields and pathways. These approaches look at individuals and their information environment from two different angles, thus capturing two different views of the relationship between information seeking behaviors and contexts.

The first approach conceptualizes an information environment as the information field within which the individual is embedded (Cool, 2001). Containing resources,
constraints and information channels (Johnson, 1997), an information field provides a more static context for information seeking as it is situated in a physical world in which individuals make contact with a relatively stable interpersonal network of family and friends, and are exposed to a mix of media channels such as TV, newspaper, radio and community news. This physical context, Johnson et al. (2006) maintained, serves to stabilize an individual’s information field, not only determining the nature of information individuals are exposed to on a regular basis but also constraining the number of sources of information available for selection. However, individuals can also arrange the elements of their information fields to “maximize their surveillance of health information, providing an initial contextualizing of their environment” (Johnson et al., 2006, p. 571). In other words, an individual’s information field only provides a starting point for information seeking and it can be modified to adjust to the changing information demands faced in an individual’s life.

As opposed to the field conception, according to the pathway conception, individuals seek their information within a matrix formed by sources, channels, and messages (Johnson et al., 2006). Focusing on the route an individual follows in choosing channels to search for needed information, this conception of context is more dynamic and active. Furthermore, as a route traveled by individuals step-by-step over time, the movements may lead to changing contexts. These directly result from, and respond to, the previous channels and information that they uncovered. In this sense, individual actions are more intentional. They may even develop relatively fixed or habitual pathways for negotiating a combination of information channels and sources (Johnson et al., 2006).
Earlier work using the pathway conception was done by Pescosolido (1992) who identified pathways in the selection of interpersonal sources of health information. Focusing on medical care decisions, her study attempted to identify clusters of interpersonal sources consulted in seeking health information. A total of eight pathways were identified, among which three consisted of only one single source, such as physician alone, and two of them did not include physicians as a source at all. The single-source pattern indicated a lack of persistence of individuals in seeking information to solve medical problems (Pescosolido, 1992). With the addition of the information field conception, Johnson et al. (2006) compared and contrasted the field vs. the pathway approaches in a survey that asked 882 adults three questions about what sources they would consult for information on inherited cancers, a particularly rich information seeking problem. The results identified four clusters for information fields (Authoritative, Eclectic, Family Dominant, and Least Effort) and 16 different pathways. This indicated increased fragmentation of information environments, driven by the contextualizing of individuals, although the use of the Internet appears to be an emerging common theme.

c. Three senses of context

Dervin (1997) noted that the persistent theoretical problem of accounting for individual action in a social context is seldom explicitly addressed, and we are unaware of the different senses of context in use. In response to this criticism, Johnson (2003) explored in details different senses of context and presented three approaches used in information seeking research: context as equivalent to situation, context as contingency, and context as frameworks.
According to Johnson, context as equivalent to situation is the most primitive. Here context is conceived of as an elaborate list of situational factors. Hence a situational approach to context entails simply to describing specifications of the environment in which information seeking is embedded, such as various cultural, structural and economic factors. Johnson (2003) argued that this approach, while seeking “exhaustive, objective” descriptions, does not venture to explain the link between situational factors and the process of interest.

The context as contingency approach aims to address the link between contextual and process factors by specifying key situational factors that have predictable effects on information seeking. In this sense, this approach is similar to the objectified notion of context mentioned above. One underlying assumption of this approach is that entities’ effectiveness is determined by the match between their features and their surrounding environment (Allen & Kim, 2000). Other terms such as fit, contingency and congruency are also used similarly as “match”. Most prominent criticisms of this approach include lack of consistent and careful distinctions of these concepts (Fry & Smith, 1987) and its tautological or circular reasoning (Johnson, 2003). One example of contingency approach is a comprehensive model of information seeking (CMIS) developed by Johnson and his colleagues that aims to explain usage of particular channels of information seeking. The model contains three classes of variables: The antecedents (demography, experience, salience and belief) determines the imperative to seek information; information carrier factors (characteristics, utilities) decide the nature of intentions to seek information from different channels; and information seeking actions (actions) reflect the nature of search and are the outcomes of the antecedents and channels factors.
The third sense, context as frameworks, is of an interpretive nature compared with the more functional contingency approach. The concept of frameworks is most commonly used to indicate both a way of viewing the world and also interpreting it subjectively. Johnson (2003) focused on frameworks that provide basic structure and context for interaction within an organizational context. He listed five frameworks, namely exchange, formal, sentiment, normative, and negotiated order, with each providing a unique conception of the relationship between individuals and organizations. For instance, while a formal framework essentially represents the bureaucratic world of the organization, a normative framework (culture, as an example) provides a framework that express underlying cultural values, shared norms of performance or shared philosophy of management (Johnson, 2003). All these frameworks shape information seeking process in organizations in different ways and at the same time the process is also shaped by larger social context.

While there are many differences among the three senses, Johnson (2003) highlighted their theoretical orientation. Situational approach follows a classic positive paradigm and thus views the individual as separated from the context, whereas context as frameworks approach views the individual and context as inseparable and one cannot be understood without the other.

*Context as a Multi-Level Concept*

In addition to new theoretical views of the context of information seeking, research has also displayed continued development in terms of how to define context as a multidimensional and multi-level concept. There has also been significant progress in efforts to identify specific ways in which context influences information behavior.
A special issue of Information Processing and Management in 2002 was devoted to the issue of context in information retrieval (IR) research. Research studies presented theoretical and empirical work that addressed aspects of context understanding in IR. Four overlapping and related levels of context were identified: information environment level, information seeking level, IR interaction level, and query level. Context can be defined as the information environment within which information behaviors take place. At this level, information environments have been examined in terms of channel of information and communication (Spink & Cole, 2001). At information seeking level, focus has been put on the nature of tasks, goals and intentions relevant to a certain problem situation. At IR interaction level, context has been looked at in terms of the user-system interaction in a search session with Xie’s (2000) “planned vs. situated action” model as a useful framework. Finally at query level, the focus is on IR system performance on user queries.

The special issue selected most recent research on all different levels of context. Ng (2002) revisited the “situated” vs. “planned” model with a specific IR task conducted by graduate students. The author compared the strength of a priori plan vs. situated action over the course of changes in a problem-solving situation, and the results supported both as important elements of context in IR. Bilail and Kirby (2002) conducted a study that explored context at the IR interaction level. They looked at the cognitive, affective and psychological behaviors by junior high school and graduate students when searching online using a web search engine. In the study, the ability to understand the structure of the search engine was seen as context understanding that is associated with the ability to
recover from “breakdowns” in the search process. Study results suggested that older students tended to have greater recovery of context understanding.

**Context and Information behavior**

One difficult issue in the research on context is its specific influence on information behavior. Change and Lee’s (2001) study of information behavior in a dissertation research process was a recent attempt to tackle the issue. Their findings indicated that context is stratified and dynamic at three levels. Dissertation research can be seen as a journey of knowledge discovery at the macro level; at the semi-micro level, students encounter different situations as they proceed with research; at the micro level, each situation is characterized by three contextual factors: task, type of problem, and accessibility to specific information. The authors identified different relationships between context and information behavior that were dependent upon the different levels of context. At the semi-micro level, the association relationship was identified. Here certain information behavior tended to occur together. At both the semi-micro and micro level, the findings suggested that an interaction relationship existed in which contextual factors influence information behavior. This in turn altered the attributes of specific contextual factors. Also at the micro level, they found the one-directional relationship in which contextual factors “encourage, affect, determine, or prevent certain types of information behavior” (Change & Lee, 2001, p. 38).

**Situationality and Information Seeking**

As context has become a foundational concept in information science, increasing attention has also been given to the related concept of situation. However, in most cases, context and situation are used interchangeably and the definition of situation still remains
very murky. As this dissertation aims to explore the explanatory power of both contextual and situational factors separately, it is necessary to make a conceptual distinction between the two concepts.

A more recent attempt to describe the differences was made by Sonnenwald (1999) who treated context and situation as two different foundational concepts. She defined situation as being embedded in contexts. According to her conception, context is “larger than a situation and may consist of a variety of situations” (p. 180). Similarly, Allen and Kim (2000) viewed contexts as “the socially defined setting in which information users are found” (p. 1). Within each context, different situations may occur and individuals may be situated in different ways. Chang and Lee (2001) proposed a new approach to look at context and situation such that “a context consists of several situations and each situation is defined by a set of related contextual factors” (p. 29).

Different Theoretical Approaches to Situation

There have been different approaches that address situation at the theoretical level. Cool presented six perspectives on the concept of situation from different fields in his 2001 ARIST review that have been applied in information studies. Two of them, the problematic situation and the person-in-situation model, are of special interest to this dissertation.

a. The concept of the problematic situation

According to Cool (2001), the concept of the problematic situation was one of the early conceptualizations of situation that focused on “understanding individual-level psychological or cognitive states that act as precursors to information-seeking behavior” (p. 11). The problematic situation is described as an internal cognitive state in which an
individual recognizes that his knowledge about certain topics is insufficient to accomplish a desired goal. Belkin’s ASK model is an example of this treatment of situation. The other example is the situation-gap-use metaphor of Dervin’s (1983) Sense-Making Methodology that has deep influence on this dissertation.

In Dervin’s (1983; 2003) conception, the discontinuous and “gappy” nature of human condition creates the “gap” as information need, which motivates an individual to seek information through certain means to bridge the gap with newly constructed senses of meaning. Situations that involve solving a certain problem are only a subset of all the gap-bridging occasions in one’s life. The problematic situation approach has met with common criticism that it only focuses on the individual-level cognitive state, with the main emphasis on problem in a topical sense and less on situation (Cool, 2001). However, a deeper understanding of the Sense-Making Methodology shows that it put a greater emphasis on various aspects of the situation too. In fact, in typical sense-making studies, different situational factors, such as situation movement state, situation clarity, social embeddedness, and openness to communication, to name a few, have been used to predict subsequent information seeking behavior. For example, in a study of California residents who were queried about whether information can be helpful in gap-bridging, situation movement state - the way in which an individual sees his/her movement through time-space being blocked - was shown to be a stronger predictor than race (Artwood, 1980).

b. The person-in-situation approach

After Dervin and Nilan’s 1986 review, there has been a shift in LIS research from a system-centered approach to a user-centered one. In the previous decade, information
needs and seeking research has been going through another shift from the user-centered approach to a person-in-situation conception (Vakkari, 1997). Stemming from Snow’s (1994) person-situation interaction theory, Allen (1997) presented a person-in-situation model to account for the interaction of a personal and situational variable in explaining information needs and information seeking behavior. The central tenet of this approach is that individuals are constrained by different social situations, personal characteristics (such as knowledge structure), cognitive style, and personality traits. All of these influence their information behavior. To fully understand information needs and seeking behavior, both types of variables should be taken into account. The significance of this person-in-situation model, as Cool said, marks “an important first step toward understanding information behavior from an interactionist perspective” (Cool, 2001, p. 28) although it needs clearer conceptualizations of situation, context and task.

The person-in-situation model has been applied in a few empirical studies. Allen and Kim (1997) conducted three experiments to investigate the interaction of personal factors (cognitive style and abilities) and situational variables (task assigned to the participants) in predicting information behavior. Results showed significant relationships between personal variables and task performance, but no significant interaction between personal variables and situational factors, suggesting that cognitive styles and types of task work independently in affecting information seeking. Dunne’s (2002) research on information seeking and use by battered women extended Allen’s approach into a “person-in-progressive-situations” model by showing a more complete and complex picture of information seeking in which these battered women’s information needs and seeking change in response to the progression of abuse at different stages.
Summary of the Review of Two Literatures

In summary of the two literatures above, we can see that the majority of research studies on health information seeking and use in health communication literature focused on identifying factors that predict information seeking and source or channel use. These studies often used quantitative methodology, mostly close-ended surveys. There has been a serious lack of research that studied health information seeking in a holistic way using a qualitative approach. Comparatively, in the LIS literature, researchers in recent years have adopted a process approach to study information seeking and use behaviors from the perspectives of users and have put greater emphasis on the impact of contextual and situational factors on these behaviors.

Borrowing from the LIS literature, this dissertation takes a situational and contextual approach to the study of health information seeking and use. Using Schatzman’s grounded theory dimensional analysis, this dissertation aims to generate a beginning grounded theory of health information seeking and use in context through understanding and interpreting the lived experience of individuals in real life health situations. Using Dervin's Sense-Making Methodology situational contingency analysis, this dissertation also tries to provide a more detailed portrayal of how different types of “predictor” factors, in this case personal and situational factors, relate to various aspects of information behavior in these health situations.

This dissertation, thus, intends to contribute to the health communication literature in two ways: 1) by going beyond the focus on source or channel use to study in a holistic way all important aspects of information seeking and use, including information needs, source use, information barriers and information helps, from a process perspective
with a contextual and situational approach drawn from the LIS community; and 2) to examine the potential of a grounded theoretic approach to analysis as a means of enriching health communication theorizing by comparing two different qualitative approaches to analysis, Schatzman’s grounded theory dimensional analysis and Dervin’s Sense-Making Methodology situational contingency analysis, to see if and how they complement each other.
CHAPTER 3

STUDY DESIGN AND METHODS

This chapter explains the study design and analysis methods used for this dissertation. The chapter starts by giving a concise introduction to the history of grounded theory approach, its development by Glaser and Strauss and later their split over how to do data analysis. After this, the chapter attends to various issues of the study design, including sampling, data collection and interviewing approach. Finally the chapter focuses on the two different approaches to data analysis selected for this dissertation, addressing issues such as why they are selected, the similarity and difference between them and how each analysis approach is conducted specifically with the help of a typical sample study.

The Grounded Theory Approach

Developed by Anselm Strauss and Barney Glaser in the 1960s, grounded theory is an inductive methodology that allows the researcher to develop a theoretical account of the general features of a phenomenon under study while grounding the account in empirical observations or data at the same time (Glaser & Strauss, 1967). Informed by symbolic interactionism, a theoretical perspective in sociology in which humans are regarded as actively participating in creating parts of their own development through
interaction with the social world, an assumption of grounded theory is that individuals and groups share social circumstances, generating common meaning and understanding (Glaser, 1978; Glaser & Strauss, 1967).

The work of Strauss and Glaser was revolutionary at the time because it challenged the long held view that qualitative research could only produce descriptive case studies rather than theory development, as well as the belief that qualitative methods are unsystematic and atheoretical, therefore can only serve as precursor to more scientific and systematic quantitative work (Charmaz, 1995). Before the birth of grounded theory, qualitative analysis was mostly taught through oral tradition, without elaborated written procedures. With grounded theory, researchers were able to learn qualitative analysis systematically following explicit analytic procedures and research strategies. As a result, grounded theory gained a wide audience.

In the 1990s after Strauss and his new co-author Corbin published the book, *Basics of qualitative research: Grounded theory procedures and techniques*, a heated debate broke out between Glaser and Strauss, with Glaser (1992) criticizing Strauss and Corbin of forcing data and analysis through their preconceptions, hypotheses and analytic questions. In fact, he called their approach “full conceptual description”, not grounded theory. Maintaining his original stance, Glaser continued to emphasize the importance of letting stories emerge out of the data through constant comparison without forcing data into preconceived categories. Commenting on the debate, Stern (1994) identified the dichotomy as one in which Glaser allows the data to tell its own story, while Strauss “brings to bear every possible contingency that could relate to the data, whether it appears in the data or not” (p. 220).
While it is impossible to ignore the two originators’ differences, the debate is not meant to be the focus of this methodology section. It is more helpful to briefly introduce the strengths of grounded theory with regard to analytical strategies, such as theoretical sampling, coding process, memo writing, constant comparative analysis, and theoretical saturation, as these strategies constitute an ongoing process of development, refinement, and integration of the emerging theory (Charmaz, 2000; Glaser & Strauss, 1967).

A defining feature of grounded theory is theoretical sampling, which is used to go back to the field to collect more data to fill in any conceptual gaps in the process of developing, emerging categories (Charmaz, 2000). Another key technique is called constant comparative method. Grounded theorists use this method to compare different people in terms of their situations, actions and experiences; data from the same individual at different points of time; incident with incident; and data with categories. Data analysis consists of three steps. The first step is to read the transcripts and write down concepts and terms that capture the content of the text. This initial process is called open coding, which results in a set of open codes. The second step is called axial coding. This is designated to process the data at meta-level. Researchers examine all the open-code categories and sub-categories to discern relationships between them. The final step of analysis is called selective coding, which involves choosing the most crucial core category and grounding it in the first two stages of coding as well as in quotes from participants (Swatton & O’Callaghan, 1999). At this stage, researchers present a model or theory and construct a descriptive narrative about the central phenomenon of a study. It is important to note that grounded theory is not capitalized in this dissertation since it has become a term used for inductively derived theorizing approaches.
This dissertation chose the grounded theory approach due to the considerations that a) there have been few qualitative studies on health information seeking and use; b) grounded theory enables the researcher to capture individuals’ lived experience of information seeking as they went through various health situations; c) more importantly, grounded theory allows the researcher to go beyond the experience to make a conceptual leap to theory development. Since the purpose of grounded theory is to generate new knowledge based on participants’ own perceptions and experiences, it is inductive and interpretive in nature, rather than deductive and predictive. Thus no formal, testable hypotheses or expectations are drawn in this dissertation.

Grounded Theory and Lived Experience

Qualitative research is essentially a way of describing and analyzing the culture and behavior of people from the points of view of those being studied (Bryman, 1988). Focusing on individuals’ lived experiences as they are presented in thoughts, ideas, feelings, attitudes and perceptions, qualitative methodology, with its flexible and emergent design and interpretive objective, allows the complexity and wholeness of the phenomenon to be studied. The alternative is to delimit people’s experience into pre-defined and preconceived categories or hypotheses derived from existing theories (O’hman, 2005). The philosophical foundation of research on people’s lived experience is phenomenology that began with Husserlian and Heideggerian thoughts. Though there are different approaches to phenomenology, such as the descriptive and interpretive traditions, they both focus on the meaning of the lived world of experience through reflective analysis (Ray, 1994).
In the context of health science, studies on the lived experience of patients have become a major thrust of qualitative health research. These studies of different kinds of disease examine how patients make sense of their illness experience, as well as how they cope with the realities they face. Grounded theory has become one of the most frequently applied methods in these studies due to its ability to capture the details of people’s illness experience and develop theories of social or psychological processes in these experiences. Researchers have used this approach to study a variety of illness experiences, including the lived experience of people with borderline personality disorder (Fallon, 2003), early-stage dementia (Harman & Clare, 2006), end-of-life cancer care (Thulesius, Hakansson, & Petersson, 2003), high-risk pregnancy (Coffman & Ray, 1999), eating disorder (D’Abundo & Chally, 2004), and chronic illness (Charmaz, 1995).

Of all the research studies on illness experience, one group was particularly effective in uncovering the processes of identity change caused by the often very emotional and complicated illness journey, especially that of chronic illness. Bury (1982) described chronic illness as a “biographical disruption”, contending that illness necessitates a rethinking of biography and self. Corbin and Strauss (1987) viewed “biographical work” as an essential means of managing illness in everyday life and identified four types of biographical work: contextualizing, coming to terms, identity reconstruction, and biographical recasting. Following the biographical work model, Asbring (2001) described how women with chronic fatigue suffered from identity loss in the disruption of their life and how they came to terms with new identities through biographical work. Mathieson and Stam (1995) identified the process of three stages by which people with cancer renegotiated identity in narratives: feeling threat of identity,
renegotiating identity and doing biographical work. Charmaz (1987) focused on the consequences of illness experience in creating self and identity and found that chronically ill people developed different preferred identities that symbolized their desire and hope for an unknown future.

Sampling

This dissertation used a subset of data collected from a large project studying how college and university faculty and students satisfy their information needs in five different academic and everyday life situations. The project was funded in part on grant from IMLS (Institute of Museum and Library Services) to Ohio State University School of Communication (National Leadership Grant LG-02-03-0062-03. The project can be found online at http://imlsproject.comm.ohio-state.edu). The large project intended to study the satisficing of information needs by four user subgroups: faculty, graduate students, undergraduate students, and netLibrary subscribers. A two-stage stratified cluster sampling was conducted. At the first stage, colleges and universities were selected; at the second stage, random clusters of the academic rank and netLibrary individuals were contacted from these selected institutions (Dervin, Reinhard, Kerr, Song, & Shen, 2006). The sample was drawn from 44 colleges and universities that met the following three criteria: their locations being within 100 miles of Columbus, Ohio; their OhioLink membership; and their Board of Regency membership. A list of email addresses of netLibrary individuals was provided by netLibrary. Other sub-samples were either obtained free from the institutions, in the form of a printed campus directory or an online directory, or purchased from a survey sampling company. Sample lists were stratified by Carnegie institutional class into 3 groups: community colleges and primarily
undergraduate only institutions (although some had limited master's offerings); institutions that offer undergraduate and graduate programs at all levels but are not top-tier; and top-tier doctoral granting research institutions. The purpose of stratification was to make sure only 33% of the obtained interviews came from each Carnegie class strata, permitting a comparison of users and their situations based on institutional size. Likewise, the netLibrary sample was also sampled randomly from the netLibrary rosters into each of these three strata. Informants in all four sub-samples were also sampled disproportionately by rank so as to produce roughly one third faculty, graduate students, and undergraduates.

The final sample n=409 was obtained through simple random or systematic sampling depending on what sample lists were used. If print directories were used, numbers from the Downie and Heath (1974) random numbers table were used to select individuals to contact. If one respondent was not available or declined to participate, he or she was replaced by the next available person on the list that met the requirement of systematic sampling. When using the online directory, the sampling team was given a list of randomly selected last names to be entered into the search function of the online directory. The obtained names from the search became the first wave of individuals contacted via email. If the first wave did not return with an informant who completed the study matching the sub-group requirement, the institutions were sampled with the same procedures as before until at least 100 individuals from each sub-group had successfully completed the study (Dervin, Reinhard, Kerr, Song, & Shen, 2006).
Data Collection

Based on Dervin’s Sense-Making Methodology, the data collection of this dissertation was divided into two components. The first was an online survey with primarily close-ended questions. Informants were asked to describe five different information need situations they encountered in their university/college lives as well as personal lives. The five situations were: 1) a troublesome situation in university/college life, 2) a situation that involved research or scholarship, 3) a troublesome situation in life outside the university/college, 4) a situation in university/college life where most of the input came from electronic sources, and 5) a situation in life outside the university/college where most of the input came from electronic sources. They were asked to describe the situation in terms of what happened first, what happened next, and what happened last. For each situation, respondents were asked to record the sources of input they used in that situation, the helpfulness of each source on a scale from 01 to 10, and whether and to what extent they received the inputs electronically, using a list of 25 potential sources presented to them that ranged from interpersonal to library to media. Informants were then asked to think back on all the electronic sources they used in any situations in the past six months. They were given a list of specific types of electronic sources, such as electronic fiction books, online television shows, etc. For each source they used, they were asked how frequently this source was used in a university/college situation and outside the academic setting. Finally, the online survey elicited demographic information from the informants, including gender, race, level of education, academic rank, knowledge domain, and socio-economic status. Informants were paid 30 dollars to participate in the online survey.
After informants finished the online survey, they were contacted again to conduct a structured open-ended in-depth phone interview that averaged 78 minutes in order to further detail their five selected information need situations elicited in the online survey. Guided by Sense-Making Methodology, the questions tapped the hows and whys of informants’ information behavior, for example, how users assessed their situations on a series of judgments, what questions they had, what help they needed, whether they learned anything special, what sources they used to get inputs, how they saw the inputs as helping, and what prevented them from getting more help. A total of 2035 situations were successfully elicited from the interviews with 409 informants. All the interviews were recorded on tape and later transcribed verbatim by trained student transcribers on a created template. To check the accuracy and quality of the transcriptions, a different trained transcriber later listened to the first 5 minutes of each situation and followed along to do more editing if needed. As the last step, an editor checked the entire text for spelling problems, and removed anything that might identify the respondent, such as names of people, places, class or organizations (Dervin, Reinhard, Kerr, Song, & Shen, 2006). Informants who completed the phone interview were paid 40 dollars. A sample copy of the phone interview instrument is attached as appendix A.

Health-related Situations

Since the purpose of this dissertation is to look at health information seeking and use, only those among the 409 informants who described a health situation were selected into the final sample. As a result, a purposive sample of 81 informants with a subset of 81 health-related situations out of the total 2035 situations was obtained, with each health situation interview averaging about 20 minutes. While the data collection made it
possible for an informant to have contributed more than one health situation in their 5 situational narratives, this did not occur. Consequently, the 81 cases drawn were all unique informants with their own unique situations. These informants offered a range of different health situations, from dealing with acute or chronic disease, and maintaining a healthy lifestyle, to looking for affordable health insurance. Each semi-structured interview provided an in-depth view of each informant's information needs and uses in that specific health situation. The author believes that the purposive sampling strategy used here offers an adequate sample for a qualitative study such as this.
<table>
<thead>
<tr>
<th>Demographic categories</th>
<th>Frequencies</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>32</td>
<td>39.5%</td>
</tr>
<tr>
<td>Female</td>
<td>49</td>
<td>60.5%</td>
</tr>
<tr>
<td><strong>B. Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>38</td>
<td>46.9%</td>
</tr>
<tr>
<td>30-39</td>
<td>17</td>
<td>21%</td>
</tr>
<tr>
<td>40-49</td>
<td>14</td>
<td>14.3%</td>
</tr>
<tr>
<td>50-59</td>
<td>7</td>
<td>8.6%</td>
</tr>
<tr>
<td>60-69</td>
<td>4</td>
<td>4.9%</td>
</tr>
<tr>
<td>70-79</td>
<td>1</td>
<td>1.2%</td>
</tr>
<tr>
<td><strong>C. Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>33</td>
<td>40.7%</td>
</tr>
<tr>
<td>Married</td>
<td>48</td>
<td>59.3%</td>
</tr>
<tr>
<td><strong>D. Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>69</td>
<td>85.2%</td>
</tr>
<tr>
<td>Asian</td>
<td>5</td>
<td>6.2%</td>
</tr>
<tr>
<td>African American</td>
<td>4</td>
<td>4.9%</td>
</tr>
<tr>
<td>Middle Eastern</td>
<td>2</td>
<td>2.5%</td>
</tr>
<tr>
<td>Arabic</td>
<td>1</td>
<td>1.2%</td>
</tr>
<tr>
<td>Native American</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>E. Socioeconomic status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>15</td>
<td>18.5%</td>
</tr>
<tr>
<td>Blue collar</td>
<td>13</td>
<td>16%</td>
</tr>
<tr>
<td>White collar, non-professional</td>
<td>9</td>
<td>11.1%</td>
</tr>
<tr>
<td>Professional intern, trainee</td>
<td>13</td>
<td>16%</td>
</tr>
<tr>
<td>Professional or higher</td>
<td>31</td>
<td>38.3%</td>
</tr>
<tr>
<td><strong>F. Academic status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate students</td>
<td>22</td>
<td>27.2%</td>
</tr>
<tr>
<td>Graduate students</td>
<td>21</td>
<td>25.9%</td>
</tr>
<tr>
<td>Faculty</td>
<td>38</td>
<td>46.9%</td>
</tr>
<tr>
<td><strong>G. Highest degree earned</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school diploma</td>
<td>20</td>
<td>24.7%</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>19</td>
<td>23.5%</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>14</td>
<td>17.3%</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>28</td>
<td>34.6%</td>
</tr>
</tbody>
</table>

Table 3.1: A summary of demographic characteristics of all informants

The Interviewing Approach

To get at information seeking and use experience in health-related situations from the user’s perspective, structured yet open-ended interviews were conducted with all
informants based on Dervin’s Sense-Making Methodology. Sense-Making Methodology has been under development for more than 30 years as an approach to studying and serving informants. According to Dervin, Sense-Making Methodology is defined as a "methodology between the cracks" because “It is informed by numerous research traditions, some of which are considered oppositional to each other -- e.g. qualitative and quantitative, critical and administrative, American and European.” (Dervin, 2007, p. 2).

As a coherent set of theoretical conceptualizations that can be used to study and theorize communication in different contexts, Sense-Making Methodology has two assumptions central to its core. One conceptualizes the nature of reality as being “gappy” or discontinuous and the other presents the human being as a fully able and flexible subject moving across time-space trying to bridge those gaps encountered. With this assumption, individuals are considered capable of reflecting on their thoughts, feelings, and actions as well as articulating how and why they think, feel and act the way they do.

Drawn from the Sense-Making Methodology, Sense-Making interviewing was developed as an approach capable of eliciting and hearing what people "really" want, think, need, feel, experience and struggle with. As Dervin (2007) pointed out, two major problems existed with most qualitative approaches to interviewing: the intrusion from most qualitative interviews on informants that prevent us from hearing their stories and the fact that qualitative interviewing is rarely both genuinely qualitative and amenable to systematic analysis at the same time. Sense-Making interviewing was designed to accomplish these two seemingly incommensurate goals.

Below is the Sense-Making Metaphor, the primary tool used to organize the implementations of Sense-Making’s fundamental mandates. The metaphor shows a
sense-maker moving through time-space. Each moment in time-space is conceptualized as step-taking across gaps, but not necessarily involving problem solving or decision making. Instead, it implies that the sense-maker “must ‘move’ from a ‘situation’ to cross a ‘gap’ using a ‘bridge’ that leads in time-space to ‘outcomes’” (Dervin, 2007, p. 9).

Figure 3.1: The Sense-Making Metaphor (Dervin, 2006, copied and used with permission)

While many dimensions of this metaphor are addressed in Sense-Making studies, the core metaphor is organized in a triangle with situation, gap, bridge and outcome as the key dimensions.
A variety of Sense-Making approaches to interviewing have been developed in order to dig into the depths of individuals’ sense-making experiences. The large-scale study from which this dissertation data was drawn used the approach known in Sense-Making as the Sense-Making Micro-Element interviewing approach (Dervin, 2007). As shown by the transcription of a sample health situation interview in appendix B, the interview proceeded in the following steps according to the Sense-Making triangle above:

1. Situation description: At the beginning of each health situation, the interviewer read back to the informants their situation description as it was written for the online survey and asked if they wanted to add anything to the description.

2. Situation origin: Following the situation description, the informants were asked if they saw the origin of the situation as being one that just happened,
one they voluntarily journeyed into, one that was imposed on them by others, or any combination of the above.

3. Situation assessment: Informants were then asked to make a series of close-ended assessments of the situation on a 01 to 10 scale, such as how challenging, important, confusing the situation was, how much prior experience they had with similar situations, and to what extent they saw barriers standing in their way, got contradictory inputs, and were helped.

4. Big question in situation: Following the assessments, informants were asked to list the big or important questions they needed to unravel or clarify in the situation, whether they got a complete answer to the questions, and if not, what prevented them from getting a complete answer.

5. Special learnings in situation: Informants were asked to describe anything special they learned from the experience and how the special learning helped them.

6. Helps sought in situation: Then the informants were asked to report what help they wanted or needed in the situation, to what extent they got the help or not, and if not, what prevented them from getting all the help.

7. Magic wand: In the next step, the interviewer asked the informants what would have been the best help they could have received in the situation had they been able to wave a magic wand.

8. Source used and source evaluation: Afterwards, informants were queried to evaluate the sources they used to get input or information in order to solve their problems in the situation. They first graded the helpfulness of each
source on a scale from 01 to 10, 01 being no help at all and 10 being maximum help. They then explained how each source helped them, and if applicable, why they did not get more help from that source.

9. Final assessment: Next, informants were asked to look over the situation in order to make a final assessment comparing different sources in terms of their helpfulness.

10. Source trustworthiness: Finally, interviewers asked informants to evaluate the trustworthiness of the sources of input. They were asked if there were any sources they considered trustworthy but could not get access to, and if so, what prevented the use; if there were any sources used that they thought trustworthy but ended up being untrustworthy, and what led to this negative evaluation; and if there were sources used that they considered untrustworthy but turned out being trustworthy, and what led to this positive evaluation.

Data Analysis

The author decided to apply two different approaches to analysis to the same 81 narratively derived interviews of informants’ health situations. One is Schatzman’s grounded theory dimensional analysis, and the other is Dervin’s Sense-Making Methodology guided situational contingency analysis. The primary reason for making this choice is that the two approaches, with different analytic focus, together help to achieve the two major research objectives of this dissertation.

The common feature shared by the two approaches is that both of them are qualitative inductive analyses of informants’ real-life experience, involving developing key categories from narrative interview data. However, the way that categories are
developed is different for them. While Schatzman’s grounded theory dimensional analysis goes through open, axial and theoretical coding with a constant comparative method to get key categories, Dervin’s Sense-Making Methodology guided situational contingency analysis uses the Sense-Making metaphor as an inductive framework for deriving categories with a systematic content analysis method.

The major difference between the two approaches concerns the theoretical questions they each aims to answer. Schatzman’s grounded theory dimensional analysis uses an explanatory matrix to answer the question “what is all involved here?” (Schatzman, 1991, p. 310), then, by explicating the relationships between these dimensions, a grounded theory or conceptual framework emerges to explain the general features of a complex phenomenon. The explanatory matrix offers a procedural and a structural framework for analysis by organizing the perspective, context (the situation or environment), conditions (dimensions influencing interactions), processes (intentional or unintentional responses impelled by specific conditions), and consequences (outcomes of actions or processes) of a complex problem (Schatzman, 1991). Dervin’s Sense-Making Methodology guided situational contingency analysis, on the other hand, focuses on information seeking and use behaviors at specific moments of time-space during informants’ encounters with their health situation. Pitting different types of factors against one another, such as across time-space, a priori time-space and time-space bounded factors, situational contingency analysis aims to unravel how these factors alone or together account for information behavior. The two approaches are explained in more depth in the two sections below.
Another difference between the approaches is the unit of analysis each uses. Though both use informants-in-situations as the unit of analysis, there are conceptual differences in terms of how they conceptualize situation. In Schatzman’s grounded theory dimensional analysis, situation is conceptualized in a way relative to task domain. In other words, it merely refers, in a very general way, to the information needs situation in which an informant finds himself. In this dissertation, situation refers to an experience of information seeking and use associated with an attempt to deal with a health-related problem of some sort. Each informant only has one situation. In Dervin’s Sense-Making Methodology guided situational contingency analysis, situation is conceptualized as specific moments as informants move across time-space through the whole process of information seeking and use. These moments can be at any step during the process and typically there are multiple moments (situations) per informant. In this dissertation, situation refers to the focus or nature of the health-related incidence they were dealing with at the entry moment of the information seeking and use process. Since there were 81 different informants in 81 different health situations, the number of informants-in-situations actually equals the number of informants.

The use of these two qualitative approaches to analysis is designed to accomplish the two research objectives set forth in the introductory chapter. Through Schatzmen’s grounded theory dimensional analysis, all dimensions involved in the health information seeking and use process, far beyond the traditional source or channel use, will be identified and organized along an explanatory matrix. As a result, a situated model of health information seeking and use is expected to be developed in order to explain informants’ lived experience from their own perspective. Through Dervin’s Sense-
Making Methodology guided situational contingency analysis, a situational approach is employed in order to examine time-space specific moments of information seeking and use. The goal is to see if and how two different factors, one demographic and the other situational, each and together relate to various information behaviors in a contingent manner. The factors are examined in terms of information needs, learning from the situation, helps sought in the situation, sources use and evaluation, and how the sources helped informants. It is hoped that by comparing and contrasting these two analytical approaches, both using grounded theorizing but with different purposes, we can shed some light on the potential of such approaches, particularly those employing different analyses, in helping us understand health information seeking and use behaviors. It is further hoped that this comparison will represent a positive contribution to the area of health communication theory.

Schatzmen’s Grounded Theory Dimensional Analysis

Introduction

Central to dimensional analysis is the symbolic interactionist understanding that the process of thinking is governed by and reflective of one’s interaction with others (Schatzman, 1991). Dimensional analysis was first developed by Schatzman, a colleague of Barney Glaser and Anselm Strauss, for the purpose of better articulating the discovery process of qualitative research (Schatzman, 1991), and later was presented by Kools et al. (1996) as an alternative to the constant comparative method originally conceived by Glaser and Strauss. Dimensional analysis is consistent with the constant comparative method in its directive to work analytically with one’s own experiences, but extends the original method by providing an epistemological foundation for analysis based on a
conception of natural analysis (McCarthy, 2003). According to Schatzman (1991), the natural character of human analysis can be conceptualized as the different styles and strategies people use to figure things out when interacting with the complexity of ordinary life. These styles and strategies are developed early on in childhood. Later during adulthood, the basic processes of thinking remains the same, even though the content of thought and/or the phenomena people study may become more sophisticated.

In dimensional analysis, an explanatory matrix is developed as a framework for the analytic processes of grounded theory research. The matrix is used to answer the question “What all is involved here?” (Schatzman, 1991, p. 310). The explanatory matrix offers a procedural and a structural framework for analysis by organizing the perspective, context (the situation or environment), conditions (dimensions influencing interactions), processes (intentional or unintentional responses impelled by specific conditions), and consequences (outcomes of actions or processes) of a complex problem (Schatzman, 1991).

After comparing the original grounded theory analysis approach with dimensional analysis, the author decided to apply dimensional analysis for three major reasons. First, since the interviews used in this dissertation are a subset of data from a larger project, all interviews were conducted and completed in a limited time frame; thus theoretical sampling was not done at that time. Second, over the years there have been variations in terms of analytic processes advocated by Strauss, Glaser and later by their followers, making them less explicit and thus difficult to follow. As a result, the quality of grounded theory work varies greatly, ranging from simple content analysis or thematic analysis in the name of grounded theory to qualified substantive theories or models of processes of
different phenomena. Third, compared with grounded theory, the explanatory matrix of dimensional analysis offers a clear and more intuitive procedural and structural framework for analysis. The focuses on contexts, conditions, processes and consequences match the objective of this dissertation to uncover the same dimensions and understand the interrelationship among them for health information seeking and use.

**Analysis Procedures**

In terms of specific procedures, a standard Schatzman’s grounded theory dimensional analysis consists of three stages. The first stage, called designation, aims to expand data conceptually (McCarthy, 2003). During this stage, a line-by-line analysis is done throughout the transcript to identify or name all the dimensions (things and events observed in the data) without regard to the saliency or importance of the dimensions. Each dimension, defined as an abstract concept or a component of a phenomenon, is given a designation or label. The purpose of designation is to examine the breadth of conceptual possibilities in the interviews.

After conceptually expanding the data, the analysis proceeds to the differentiation stage by categorizing and arranging the dimensions along an explanatory matrix. At this stage, the researcher detects patterns and relationships within the coded dimensions and examines their relative importance. The most prominent dimensions within and across the groups of participants are selected and assigned to the matrix as context, condition, action, process, or consequence. Context is the situation in which the dimensions are embedded; conditions are dimensions that facilitate or block an action or interaction; process is a set of actions or interactions generated by specific conditions; and consequences are the outcomes of a given process (Schatzman, 1991). This assignment is
possible only after the key perspective, the dimension found to be central to the emerging theory, has been selected from among competing dimensions. Once selected, it provides the researcher with a particular view from which to make the best sense of the data. The purpose of the differentiation stage is to limit data as well as provide the explanatory matrix as a structure for interpretation (McCarthy, 2003).

At the third stage of analysis called integration, the researcher, with the key perspective selected, is able to specify each conceptual component of the explanatory matrix. After this, integration of the data analysis can be achieved by describing and explaining the relationships between these components of the explanatory matrix. The final matrix thus serves as the foundation of a narrative report on the findings.

**Summary**

In essence, Schatzman’s grounded theory dimensional analysis uses an explanatory matrix as a procedural and a structural framework for analysis in an attempt to answer the question “What all is involved here?” (Schatzman, 1991, p. 310). The explanatory matrix organizes the context, conditions, processes and consequences of a complex problem to offer a grounded theory of the phenomenon under study. One thing to note is that the explanatory matrix cannot be written in advance but the procedures of analysis for this dissertation will be modeled after the example given below.

**A Sample Study**

A grounded theory study conducted by Lutz (2005) clearly illustrated how dimensional analysis was applied in order to facilitate understanding of women’s experiences and perceptions regarding intimate partner abuse during the childbearing cycle. The author conducted 21 interviews with 12 women who were either currently in
an abusive relationship with an intimate male partner and pregnant or postpartum (n = 5),
or who had experienced abuse by an intimate male partner during a past pregnancy or
postpartum (n = 7). Following the procedures of dimensional analysis, the author initially
conducted open coding through dimensionalizing to expand the data into attributes to
which labels, or designations, were applied. When sufficient dimensions were identified,
each dimension or category was evaluated as a potential guiding perspective. The
perspective of “living two lives” was finally selected based on its ability to provide the
most complete story while accounting for variation (Schatzman, 1991). Afterwards, the
perspective and context guided the organization of contexts, conditions, processes and
consequences within the explanatory matrix as well as clarified and refined conceptual
links (Kools et al., 1996; Schatzman, 1991). Finally, relationships among dimensions
were made clear through dense descriptions that also accounted for variations and
processes.

Through data analysis, a grounded theory emerged with the organizing
perspective of living two lives. Abuse and pregnancy, two seemingly incongruent but
inextricably linked phenomena, constituted the contexts of the complicated lives of these
women. Two conditions, guarding and revealing the intersection between the public and
private lives and pregnancy, occurred simultaneously. These women engaged in five
different processes to negotiate these conditions, which were directly and indirectly
influenced by a few intervening conditions and crystallizing events. As a result, the
experience and behaviors of these women left them with diverse and various legal, social,
and personal consequences throughout the childbearing cycle (Lutz, 2005).
Contexts. To explain the grounded theory in more detail, the contexts of the two lives were public, reflecting the pregnancy, and private, reflecting the abuse. In the public life, pregnancy is a “time-limited opportunity where the expectations, assumptions, and responses of people around the pregnant woman are highly influential” (Lutz, 2005, p. 809). The private life represented the reality of abuse that the women recognized but did not want to acknowledge. At this stage, the abusive relationship had good times and bad, ending this abusive relationship was not seriously considered due to concerns about negative social and cultural attributions of single parenthood.

Conditions. The results showed that the primary condition these women engaged in was a process of guarding and revealing the intersection between the two lives. To guard the public life, they tried to present the positive impression of a pregnant and capable woman in a happy relationship. The secondary condition was the onset of the process of becoming a mother. During this process, a mother-child relationship started to develop as well as a new identity as a mother.

Processes. Five interwoven processes emerged from the data: (a) pursuing the dream, (b) enduring for the family’s sake, (c) engaging a dynamic balance, (d) reconciling dreams with reality, and (e) revealing and integrating two lives (Lutz, 2005).

a. Pursuing the dream. Commitment to the family as a unity, positive illusions of the partner and family life, and separating the private from the public lives were distinguishing features of this process. At this point, these women believed or wanted to believe that love would mend the relationship and the abuse would stop.

b. Enduring for the family’s sake. Family became the primary consideration for this process. The women considered staying in the relationship and working to create an
ideal home and family as the best option for the whole family; therefore, they subdued any individual needs and endured the partners’ abuse.

c. Engaging a dynamic balance. During this process, these women grew disillusioned and hopeless. These feelings were balanced against the desire for a positive outcome and fear of the inability to “make it on my own” (Lutz, 2005). As emotional pain increased, some women could not keep silent any more and ended up revealing the abuse to family and close friends; however, they were very sensitive to their responses and worried about the consequences of disclosure.

d. Reconciling the dreams of pregnancy with reality. The focus of this process was surviving and taking care of oneself, the unborn or newborn baby, and other children. The women realized that something was definitely wrong with the relationship, although they may not yet call the partner abusive. As fear, depression and worry about their fate and future increased, the women judiciously disclosed their abuse to others after an abusive incident, but the disclosure was marked by feelings of embarrassment and shame (Lutz, 2005).

d. Revealing and integrating two lives. At this point, the focus had completely shifted to survival and taking the best care of the child or children. The intimate relationship has now been labeled abusive. The women continued to worry about their ability to make it on their own, but the feeling was outweighed by expectations of being in a better emotional situation.

Crystallizing events. During the process, three intervening conditions could take place, leading to a remarkable and immediate change in perspective from focusing on the hopes of pregnancy and happy family to confronting the reality and negative effects of
the abuse. The three crystallizing events are: (a) the abusive partner ending the relationship; (b) a perceived increased danger to the woman, her child, or important others; and (c) the birth of the baby.

Consequences. These women described various social, personal, and legal consequences resulting from their actions as their priorities changed throughout the childbearing cycle of pregnancy, postpartum, and beyond (Lutz, 2005). When pregnant, the focus was on the intimate relationship and constructing a family. They concentrated on the hopes and dreams associated with pregnancy, unless a crystallizing event occurred, leaving the relationship was not considered an option. However, the stress felt from the abuse made most women unable to enjoy the pregnancy as they wished. In the immediate postpartum period, the priority for most women shifted from the abusive partner to the new baby. As the dichotomy between the fantasy and reality grew, some women considered leaving the abusive partner though it was not still an option for most others. Many of them tried to placate the partner to avoid conflicts. For most women, the delayed process of maternal identity formation and mother-child attachment began at this time. At about 2 years after the child’s birth, the focus of the women shifted from constructing a family with the abusive partner to creating a family without the partner. Dreams for the so-called family were gradually abandoned or modified. Over time, concern for their own and their children’s safety and well being overtook their commitment to the abusive partner. As a result, all but one woman left the abusive partner.

Dervin’s Sense-Making Methodology Guided Situational Contingency Analysis

With its set of fundamental mandates, Sense-Making Methodology also provides guidance for data collection and data analysis. While there are multiple analysis
approaches used in Sense-Making studies, the most widely used is what Dervin called situational contingency analysis.

*The Situational Approach to Analysis*

The situational contingency analysis takes a situational approach to look at information seeking and use. Unlike many studies that look at average behaviors of informants by asking them what they usually do or how often they do something across time-space, Sense-Making has always emphasized the importance of variability of informant behaviors as they move across time-space in changing situations. By focusing on the movement at time-space specific moments of information seeking and use process, Sense-Making is able to better understand informant activities as they bridge gaps in ever changing situations on their own terms. Defined as a given life experience of any duration which has “reality” for a given actor (Dervin, 2004), situation is considered by Sense-Making as a better predictor of information behavior (e.g. sense-making activities) in many contexts than traditional across-time space predictors (e.g. demography and personality) that assume consistent informant behaviors even as they move across time-space (Dervin, 2007).

*The Situation-Gap-Bridge-Outcome Contingencies*

In Sense-Making studies, the sense-making moment is seen as the intersection of all aspects of the situation-gap-bridge-outcome triangle. Level 1 and level 2 triangulations of relevant Sense-Making elements are used to give informants more time to dig deeply into their memory and bring them to articulation. It is Sense-Making's basic premise that these situation-gap-bridge-outcome contingencies help to tap "situated" sense-making (Dervin, 2007). Thus, a key focus of Dervin’s situational contingency
analysis is to look at these contingencies to find out how different factors (sometimes treated as predictors in quantitative analysis) account for different aspects of information behavior conceptualized as what Dervin calls the landing places of the triangle metaphor.

In typical Sense-Making studies, a roster of questions is asked about the following main elements of the metaphor, which serves as the basis for the situation contingency analysis.

**Situation descriptions.** The situation is defined as where the informant sees self as moving from, such as the nature of the situation, its history, its constraints, its links to lived experience and its links to contexts and power structures. Sample questions tapping situation include: What happened? What were you trying to deal with? How did that connect with past events? How did it connect to forces of power in family, community and society?

**Gap.** The gap is conceptualized as the "hole" always present between this moment and the next as seen by the informant. The gaps could be anything such as questions, confusions, muddles, riddles, or angst that an informant has in a specific situation. Sample questions tapping the gaps include: What were your big questions? What were you trying to unconfuse, figure out, learn about? What did you struggle with?

**Bridge.** The bridge is defined as ideas, thoughts, beliefs, attitudes, emotions, feelings, memories, values and so on that the sense-maker turns to or constructs to bridge the gap he faces. For gap-bridging, the informant may need to turn to certain sources for useful input. The sources could be channels, media, people or institutions. At some point, the informant evaluates how the input from the sources helped or impeded his movement in the situation, using certain criteria or attributes as perceived relevant by him. Sample
questions tapping bridges include: What conclusions/ideas/ did you come to? What emotions/feelings did you experience? What led you to that conclusion/idea/emotion/feeling?

Outcome. The outcomes are defined by the sense-maker and often form part of the "situation" for the next step-taking. They are the helps, hurts, consequences or impacts that input from sources has on the situation as seen by the sense-maker. Sample questions tapping outcomes include: How did that help? facilitate? How did that hinder? If you could wave a magic wand, what would have helped?

Person descriptions. Though not part of the metaphor, informants are also asked to answer a series of demographic questions, including gender, ethnic heritage, nationality, level of education, socioeconomic status, marital status and number of children.

Sense-Making studies use two types of unit of analysis: informants and informants-in-situations. While using informants as units assumes that informant information behavior will be consistent across time-space, treating informants-in-situations as units assumes that information behavior changes as informants move from situation to situation. As a methodology, Sense-Making predicts that both kinds of prediction are necessary to understand informants’ information behavior (Dervin, 2006). In situational contingency analysis, usually the unit of analysis used is smaller than a person, such as information need situations, question-asking incidences or source-using instances.
**Analysis Procedures**

A typical Dervin’s Sense-Making Methodology guided situational contingency analysis combines both qualitative and quantitative procedures. It starts with systematic, quantitative content analysis. With inductive analysis of the usually narratively derived interviews, content analysis schemes about predictor variables (e.g. across time-space measures, a priori time-space measures, or time-space bound measures) and criterion variables (gaps, source use, source evaluation, helps or hurts from sources) are developed. These are used to code the open-ended data, producing dichotomous dummy codes. After the coding is done, statistical analyses are conducted to test the power of one or more predictor variables in predicting one or more criteria variables of information seeking and use. The statistical analyses often used include one-way analyses of variance and multiple regression models. Typically the analyses pit two or more predictor variables of different kinds (across time-space, a priori time-space or time-space bound) against one another to see how well they (each or in combination) predict criterion variables, such as question asking, source use and source help.

**Summary**

In summary, taking a situational approach to study information seeking and use behaviors, Dervin’s Sense-Making Methodology guided situational contingency analysis examines the contingencies of situation-gap-bridge-outcome triangle metaphor. A key focus of situational contingency analysis is to look at the contingencies in order to discover how different factors account for different aspects of information behavior. Employing both qualitative and quantitative statistical analysis methods, Dervin’s Sense-Making Methodology guided situational contingency analysis aims to either parcel out
the variances accounted for by different predictors in various information seeking and use measures or to identify themes or patterns of informants’ information seeking and use displayed in contingency tables by pitting different predictor factors against one another.

A Sample Study

One example of Dervin’s Sense-Making Methodology guided situational contingency analysis is Atwood’s (1980) study of race vs. situation movement state as predictors of informants’ information seeking and use. It was argued that Situational Movement State, the nature of gaps faced by individuals, was linked to the ways individuals attempt to bridge gaps by seeking and using information. Race, instead, was closely linked to the kinds of structural constraints, such as availability of sources, that individuals perceive in the process of seeking and using information. Two hypotheses were posited in the study: 1) Situational movement state, rather than race, will be a better predictor of the nature of questions asked in gap-bridging; whether gap was bridged with an answer; and how information was seen as helping in gap-bridging. 2) Race will be a better predictor of the sources sought for gap-bridging information/answers.

Data used in this study were interviews with 646 randomly selected California residents. Informants were asked to report a situation of information seeking and use along a time-line; questions they asked at each step in the time-line; whether their questions had been answered; how they saw information or answers as helping; and the sources they sought for answers. Demographic information including race was also recorded. Question-asking instances were used as the unit of analysis, as a result, 205 question-asking instances were randomly selected for the analysis.
To do the analysis, content analyses schemes were used to code the open-ended data for the predictor variables, race and situational movement state, and for the criterion variables, nature of questions asked in gap-bridging; whether gap was bridged; how information was seen as helping in gap-bridging; and the sources for gap-bridging. These criterion variables were recoded as dichotomous dummy variables for analyses purposes. Race and situational movement state were then pitted against each other as predictors of the criterion variables by using factorial analyses of variance and Duncan’s post-hoc tests for significant mean differences. The results supported Hypothesis 1, providing evidence that situational movement state was a stronger predictor than race of the nature of questions asked; whether gap was bridged; and how information was seen as helping. Hypothesis 2 was not supported and the findings suggested that both race and situational movement state were related to the sources sought for information/answers.

*Analysis Approach Used in This Dissertation*

Different from the typical statistical analysis used for Sense-Making situational contingency analysis, the author applied a qualitative approach to situational contingency analysis in this dissertation. Instead of doing statistical analysis to parcel out the variances accounted for by different predictors in various information seeking and use measures, the analysis here tried to identify themes or patterns of informants’ information seeking and use as displayed in contingency tables. This was attempted by pitting academic rank as an across time-space factor and focus of situation as a time-space specific factor in order to see how they relate to information seeking and use activities, working separately or together.
These two factors represent two ways of looking at informants in situations. In the library and information science literature, the primary method of designing services to meet informant needs has been placing users into special subgroups based on “essential characteristics of users or essential characteristics of situations users are assumed to be in” (Dervin, 2006, p. 248) even though recent literature has called for a process or activity-oriented emphasis. Dervin summarized three approaches of defining these subgroups as using demographic attributes of the user, knowledge domain of the user and everyday information need situation or task faced by the user. While helping to understand the information behavior of more user subgroups, this approach fell short of explaining information behavior during actual moments of using information systems or services due to its inherently non-communicative focus (Dervin, 2006). Therefore, researchers have called for ways of understanding information seeking and use anchored in communicative activities. While Sense-Making Methodology recognizes the usefulness of the subgroup approach, it has from its beginning especially focused on studying information behavior in a communicative way.

For the purpose of this dissertation, academic rank is selected as a factor that conceptually transcends situation as an across time-space attribute of informants. Comparatively, focus of situation is conceptualized as a time-space specific factor embedded in time and at the entry moment of informants’ sense-making activities. Though a weak interpretive factor compared to situation movement state - an actor interpretive factor focusing on sense-making moments through time-space – focus of situation is still a more situated way of identifying informants as it takes into account how informants perceive the situation themselves rather than simply imposing a group
membership on them. Focus of situation also has a long history of application in Sense-Making studies and has helped us to better understand how informants experience gaps, build bridges and use and evaluate helps from sources through situational contingency analysis.

In doing the analysis, informants-in-situations was chosen as the unit of analysis. Since there were 81 different informants in 81 different health situations, the number of informants-in-situations actually equaled the number of informants. This is different from most other Sense-Making studies in which the number of informants-in-situations is usually bigger than the number of informants because informants usually are engaged in multiple time-space bound situations.

Each informants-in-situations first was coded using the categories that emerged from Schatzman’s grounded theory dimensional analysis. For example, in a specific situation, the author coded six different measures of an informant’s information seeking and use behaviors. These were information needs, help sought, source used, source combination, helps from sources and situational learnings, using the subcategories under each key category from the dimensional analysis. When developing these categories, the author went through the stage of designation with open coding of the interview data. The coding process was also informed by the content analysis schemes developed for the larger-scale project, especially the scheme for helps from sources (Dervin, 2006). The scheme was used with permission from Dervin as the project principle investigator and is provided as an appendix at the end of this dissertation. After all categories were developed, the 81 informants-in-situations were sorted into different categories, using two different factors, academic rank and focus of situation.
For academic rank, informants were coded as either faculty, graduate or undergraduate student. After that, an iterative comparative analysis was conducted within each academic rank to compare the similarities and differences across informants on the six measures of their information behavior. After going through all the informants-in-situations, the top five most mentioned subcategories were picked out for each information behavior. For instance, for faculty informants, the five most reported information needs were cause of problem, diagnosis of disease, treatment options, chance of recovery, and the working of treatment. The same process was applied to the other five information behaviors and to the other two academic ranks. As a result, a summary table was created to look at the commonalities and differences across academic rank in their information behavior patterns. As the numbers of informants under each academic rank were different, the quantitative counting involved here was not for the purpose of using statistical analysis to discover significant differences for prediction; rather, the quantitative tools were used to facilitate a qualitative description and comparison of the similarities and differences in patterns of information behavior across academic rank.

After looking at how academic rank related to information behavior, each situation was coded by the different focuses of the health situations they were in. At the time of interview, informants were talking about the situation from a reflective perspective, and any illness situation may involve issues like looking for the right diagnosis, finding the best treatment option and getting support from family and friends. Nevertheless, seen from a specific time-space moment of the situation, each of them was focusing on a different aspect of the whole situation. This focus-of-situation category was obtained inductively from informants’ words, combining the nature of the situation and
the stage of illness. A total of 10 different focuses were identified, with their definitions and examples provided in Figure 4.2 in a section below. After the focus of situation was coded, an iterative analysis process similar to that used for the academic rank was applied to code the six information behaviors under each type of situation. Given that the numbers of situations varied for each focus of situation, the author only selected the subcategories that were reported by at least half of the informants in that type of situation so that they could be considered as a use pattern. This selection facilitated comparison across different focuses. In the end, a typology was obtained that presented the contingent relationship between different focuses of situation and other information seeking and use patterns. Again, the typology was not for statistical prediction, but presented a thematic description of the contingent relationship just mentioned.

After examining how academic rank or focus of situation affected information behavior separately, they were scrutinized together to see if their intersection had any impact on various information behaviors. Informants with the same focus of situation were categorized by academic rank first, then their information behaviors were compared and contrasted to see if the intersection brought any information use pattern. The analysis resulted in a summary table illustrating the intersection effects.
Chapter 3 explained the study design and analysis methods used for this dissertation. It started by giving a concise introduction to the history of grounded theory approach and its later development, then attended to various issues of the study design, including sampling, data collection and interviewing approach, and finally focused on the two different approaches to data analysis selected for this dissertation such as the similarity and difference between them and the specific analysis procedures involved in each approach. The purpose of this chapter is to present the results of the two analyses by explaining the results of each analysis followed by comparing and contrasting them to summarize their relationship.

Results of Schatzman’s Grounded Theory Dimensional Analysis

In review, dimensional analysis was first developed by Schatzman for the purpose of better articulating the discovery process of qualitative research (Schatzman, 1991) and later was presented as an alternative to the constant comparative method originally conceived by Glaser and Strauss. The central idea of it is that the natural character of human analysis can be conceptualized as different styles and strategies people use to
figure things out of the complexity of ordinary life. In dimensional analysis, an explanatory matrix is developed as a framework for the analytic processes and is used to identify what all is involved in a phenomenon. It also offers a procedural and a structural framework for analysis by organizing context, conditions, processes and consequences of a complex problem. A standard dimensional analysis consists of three stages, designation to identify all dimensions by open coding, differentiation to categorize and arrange the dimensions along the explanatory matrix, and integration to describe and explain the relationships between the dimensions of the explanatory matrix.

Schatzman’s grounded theory dimensional analysis identified a set of key categories from the interviews. These dimensions were arranged on an explanatory matrix to develop a situated framework of health information seeking and use, as presented below in Figure 4.1. As indicated by the model, informants’ information seeking and use experience went through a process of encountering a problem, identifying information needs and then satisfying needs with input from sources. Situated in a specific situation defined by a set of related contextual factors, their information behaviors were also conditioned by information barriers that either blocked their access to sources or intervened to compromise the helpfulness of source input. Through their sense-making efforts, the input from sources helped them in different ways to satisfy their information needs, and in only a few occasions, hindered their information-seeking endeavor. Coupled with their satisfaction or unsatisfaction, informants also acquired special learnings out of their unique health experiences. The following sections will describe the dimensions and key categories of this framework one by one in detail as well as their relationships, supported by direct quotes from the qualitative interview data.
Figure 4.1: A model of situated information seeking and use in health situations

Context

For informants in this dissertation, they were all engaged in information seeking and use in a health context. However, from a situational point of view, they faced situations of different nature and each situation was defined by a set of related contextual
factors. Three types of contextual factors were identified at different levels: structural/social/organizational factors, personal factors and disease-related factors. These factors together defined the contexts or conditions in which informants’ health information behaviors were embedded.

Structural/Social/Organizational Factors

Information behavior cannot be separated from the context surrounding them. In this dissertation, informants were confronted with a health situation of some kind. Some of them were in the process of dealing with an acute illness, some faced the challenge of taking care of a loved one, some tried to get rid of bad habits to live a healthy life, and others were looking for affordable health care. As these information-seeking behaviors might take place at different time-space locations, they were constrained by a few different social and structural factors, such as practices at different health organizations, health care system and policies, as well as social perceptions of certain illnesses. For some informants’ health situations, the influences of these factors remained hidden, while for others they directly affected informants’ chances to access sources, the quantity and quality of information they got, and the availability of health services to them.

Health Organization Practices

As supported by previous research (Broz, 2003), doctors and health professionals were still an important source informants consulted with. For most of the situations in this dissertation, informants at some point either visited a doctor’s office or had been hospitalized for a period of time. Regardless of the health problems involved, routine practices at these health organizations impacted their information behavior to different degrees.
To what extent information can be shared with patients or patient family may vary from hospital to hospital and from doctor to doctor. However, in this dissertation, while informants in general appreciated doctors for diagnosing and prescribing medicines for them, some of them showed dissatisfaction for doctors’ unwillingness to share critical information with them due to hospital rules and the state of medical industry, causing them excessive worry and extreme difficulty to make informed decisions. When an informant’s mother suffered cerebral bleeding and was in ICU in the hospital, he expressed frustration over the very limited and partial information given by doctors and nurses for their fear of breaking hospital rules.

“We were doing a lot of information gathering ourselves to try to understand what was going on, because we’d get… some information from the different folks, we got more from nurses, who were willing to talk while mom was unconscious, than we would from the surgeons or from the physician. Because, some of them were very much staying in line with what they were allowed to talk about.” (Informant #067, male faculty)

Later, he attributed the unwillingness to be the result of an unhealthy state of the medical system and the fear of litigation from patients. As a result, the incomplete information made their decision-making very hard.

“We were… really in need of better information to make long-term decisions. We were needing to know some things so we could work with them, identify rehab centers or nursing homes that might be appropriate, but all those were dependent upon, well, it depends on when we have the bed, when do you want it, we could get no timelines or no predictions from the physicians. The unwillingness to go out on a limb, and understand that that’s the state of medicine in the United States right now. They’re terrified that if they say something to us, we would hold it as a fact, even though we were saying make a guess, we know it’s just a guess, but they wouldn’t…. We wanted to know exactly what was going on, the ex post facto finding out things, some things were very upsetting and disappointing, and at the time we wanted more information, and looking back, had we had more information, I think we would have made our decisions differently.” (Informant #067, male faculty)
With the health care cost soaring in recent years, insurance coverage has become extremely important for most Americans to get quality health care. A lot of people have the experience of dealing with insurance companies to negotiate with them about covering certain kind of treatment, medicines or procedures. A few informants in this dissertation talked about their often-disappointing interaction with insurance providers. The routine practice of talking to different representatives at each time often gave them quite different and inconsistent information, which made the situation more confusing and time-consuming. This point was illustrated by an informant who tried to get the insurance company to cover a skull surgery procedure for his 4-month old son but could not get a timely and uniform answer. He wanted

“representatives to be giving those answers…answers that are in regards to what other representatives provide also, cause it seem like where, we would talk with one person and were never able to talk to the same person so, as a result, we got six different answers from six different people.”
(Informant #389, male faculty)

Health Care Crisis

As the cost of health care continues to go up, it has become more important yet more difficult for people to get an affordable and good health insurance policy. The state of health care in America seems to be in such a crisis that millions of people can neither get health care from their employers nor afford to buy one for themselves and their families. As a result, the lack of a good policy directly or indirectly affected some informants in their health situations. An incidence in the study showed the difficulty for a faculty member to find a health policy for her family. Despite that her family was healthy with minor health issues that did not cause major concerns,
“Yet we are finding it very difficult to qualify for a policy, and harder still to pay for one if we do. The situation has involved applying for numerous policies, answering every conceivable question about any and every time anyone has set foot in a doctor’s office, and having at least one family member rejected for every policy that we have applied for… The things that they’ll approve you for seem to not have any basis. It just doesn’t make sense. You think you’re going to get health care and then there’s some reason why they don’t want you… This situation has really brought my attention to the health crisis that this country is facing and the need for some intervention from the government.” (Informant #083, female faculty)

For the people without a health policy, cheaper clinics or other facilities became their choice to go for help. These facilities may help them to some extent; however, the lack of funding at these places often made it impossible to deliver the necessary service patients needed, adding extra obstacles to informants’ information seeking behaviors. For instance, when a student informant could not afford a health policy, she went to a Planned Parenthood clinic to get pills for the continuous bleeding from taking birth control pills. Though she could go online and get ideas about which pills would be better for her,

“but then that schism between what I found online and getting access to the MD and a lot of times a place like a planned parenthood clinic would not have or would not carry the type of pill that was suggested online for economic constraints from lack of funding.” (Informant #239, female graduate student)

*Social Perceptions of Illness*

A majority of the informants in this dissertation were confronted with a situation in which they were dealing with a specific illness-related incident of their own or their loved ones. Except for structural constraints mentioned above, their information behaviors were also influenced by many social factors, such as social perceptions of a certain illness, treatment of patients with certain disease, and public policies that were in
place to provide needed services for these people. These factors sometimes had a big impact on a health situation through defining its difficulty and complexity. One such example was offered by a faculty informant whose situation involved finding a good education solution for his two sons with multiple learning disorders. The difficulty of the problem was exacerbated by an improper educational system that applied a “wait to fail” approach to these children, the lack of support services in society as well as the insufficiency of alternative teaching styles for these special children. No wonder when asked about his helps needed in that situation, he said,

“It would have been nice if they were a lot more accommodating. It would have been good had they looked out for these sorts of problems, had some means of picking them up earlier and getting a solution because a lot of the earlier problems were identifying them, so a lot of the solutions attempted were not helping at all. …probably knowing what the problem was very early on and for the school to be able to put into place what was require, a different approach of teaching and in particular understanding why one son is the way he is.” (Informant #428, male faculty)

Personal Experience

In previous studies, different types of personal factors were examined as part of context to influence people’s information behavior. These factors internal to an information user include cognitive style, demographic indicators, personalities, etc. In this dissertation, informants’ personal experience with similar situations turned out to be a personal factor that had some impacts on their information behavior, mainly in terms of what major concerns or questions informants had in specific health situations they faced.

In the case of illness incidences, when an informant was faced with a similar illness episode that had happened before, they tended to concern more about the recurrence aspects of the illness, such as the persistent nature of it, the availability of new
treatments, and the prevention of it in the future. When a professor’s arm ached repeatedly for two or three times, he worried about if the recurrence was an “indicator of a bigger problem” and how to “improve the condition” and “fix it in the long term” (Informant #003, male faculty). Another informant injured his “chronically sore knee” again, and his big question was “was I going to have a chronic injury or was I going to recuperate?” (Informant #065, male faculty). In comparison, when informants encountered an illness for the first time with barely no or little experience, they wanted to know the illness from inside outside, including diagnosis, treatment and consequences and impacts on their life.

Disease-Related Factors

Aside from the larger social and structural context, some disease-related factors worked as contextual factors at another level to affect information behavior. As most of the situations in this sample involved different aspects of an illness incidence, disease-related factors could influence information needs and source use more directly than other contextual factors. Two such factors were shown to be of importance, the severity of illness and the stage of illness. They both had impact on health information behavior, though in different ways.

Severity of Illness

In a way all illness is very important and challenging to a patient and his/her family in spite of the nature of it. After all, being sick is a stressful and hurtful experience with high anxiety. However, comparatively speaking, from the descriptions of the informants, there was difference in how they looked at a situation in that in some situations the symptoms seemed not to indicate a serious problem to them while in others
the illness was more of a life-and-death matter. Using this criterion, situations could fall into the serious ones versus the not serious ones. Informants seemed to have similar information needs, despite the severity of illness, on the diagnosis, treatment, recovery, consequences of a certain disease. What the severity of illness directly affected was source selection. In general a relatively mild illness might call for fewer sources with less variety than a more severe one. A closer examination revealed a somewhat similar pattern in these “mild” situations, as shown in the following example.

In the situation, the informant found a small lump in her nose. Though she wanted to know “is it something to worry about?” and “what should I do about it if anything,” (Informant #407, female faculty) she did not see the situation as much challenging or emotional. What she did was going to the Internet to read about the symptom to find out possible diagnoses. Knowing that only occasionally the lump could be cancerous, but if removed in time, it would not be a problem at all, she decided to see a doctor who confirmed that it would not be a problem. During the process, she used her own observation and reflection to understand the information online and talked to her husband who helped to reduce her worries. In other instances, when informants did not see the problem as serious, they would forgo seeing a doctor to only rely on the Internet to make their own diagnosis and treatment decisions, as in the case of a student who took care of his own stomach problem by using WebMD and getting advice from his dad (Informant #141, male undergraduate student).

In the case of much severe illness, such as cancer, heart attack or morbid diabetes, informants were facing a situation where the danger of death could be imminent and it was extremely emotional. Their information needs were diverse on many fronts. To
satisfy these needs, they turned to multiple sources of various kinds to search for credible information on all treatment possibilities, similar experience from other people, emotional support from family, friends and colleagues, etc, etc. Informant #066 described a situation in which she was diagnosed with cancer and has since had 4 surgeries, 13 chemo hits by the time of her interview,

“Well, I have always been very very healthy and it was just a surprise check up of something that I didn’t realize that I already had and it was at stage 3B, 4 being fatal. I am relatively young and I have two very young children, so it really was a unique situation. It happened very rapidly and the treatments have been very very aggressive. Since I responded to your survey I have had several more chemo hits and I am due to go into surgery on Tuesday for my fifth surgery. So, it’s just very emotional for myself, my family, my coworkers, and everybody involved.” (Informant #066, female faculty)

In such a situation, the ultimate question she asked was whether she would live, whether the doctors could cure her, and how long she needed to wait for an answer to the question. In total she used 12 different sources to fulfill the information needs, among them family and friends gave her emotional support, church pastors gave her spiritual guidance, journal article provided new treatment options, non-fiction books brought her courage and motivation, and personal web pages of people shared with her their personal cancer battle experiences.

*Stage of Illness*

A small number of studies have looked at how stage of illness influences what people need or want in a health context (Rees and Bath, 2000; Squires et al., 2005). The results showed that information needs take place on a continuum along the stage of illness in that people tend to need different information at different stage of their illness. In this dissertation, given the way that data was collected, informants talked in a
reflective fashion about a whole situation that happened in the past six months; however, a close reading showed that each of them was most concerned with a specific stage of the illness which influenced their information behavior as well.

At diagnosis stage, the two basic questions information asked were what the problem was and what treatment to use to fix the problem. Some informants also worried about the seriousness of the illness and how to prevent it in the future. At treatment stage, informants were specifically concerned about the risks and benefits of certain drugs or surgical procedures. In this process, they were concerned about how the drugs work, the process of a procedure, effectiveness of treatment, side effects of drugs, and safety of the surgery. A student weighed 320 pounds was diabetic and facing the risk of loosing a leg. Considering undergoing Gastric Bypass surgery, he used many resources to research the “safety of the surgery”, to understand “what risks and benefits could be of my choice”, and to find a way “to changed my life style” (Informant #268, male graduate student).

During the period of recovery or rehabilitation, what an informant needed might depend on whether he/she was the patient or a caregiver of the patient. In this dissertation, all the informants that described an illness at recovering stage happened to be taking care of a loved one. Taking care of a recovering patient could involve finding a good rehab facility, arranging care taking among family members, or learning skills of care taking at home. As all of the informants were working or going to school full time, taking care of someone on the side usually added some burden or stress to their busy time, leading them doubt their ability to juggle school or work and care taking at the same time.

The following is a table presenting the three types of contextual factors in this dissertation.
Table 4.1: Three types of contextual factors for information seeking and use in health situations

<table>
<thead>
<tr>
<th>Structural/social/organizational factors</th>
<th>Personal factors</th>
<th>Disease-related factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health organization practices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health care crisis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social perceptions of illness</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Personal experience</td>
<td>Severity of illness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stage of illness</td>
</tr>
</tbody>
</table>

Actions/Behaviors

Entering the Situation

In Ellis’s (1993) study, he talked about an opening process of information seeking. His study showed that the opening process might have a process of its own in that people differ in the way they got aware of their information problem. In this dissertation, all informants were engaged in a health problem of some kind, but the way they perceived how they entered the situation varied from one to another even when they faced same or similar problems. In general, informants looked at how they got in a situation from two angles: what caused the situation to happen and to what degree they decided to get involved in the situation. Four different perceptions of how the situation emerged from the analysis.

Informants Got into the Situation by Free Will

Some informants saw themselves as walking into the situation voluntarily. They either thought that they themselves caused the situation or they personally chose to get
involved in the situation. When an informant personally initiated a situation, in a way it would be hard for him/her to escape the problem. In some cases, they foresaw the coming of certain problems, but decided to step in anyway for the sake of their health and others’ well being. From their descriptions, these informants consciously or subconsciously were aware of potential problems or issues even before certain situation took place. However, the health situations in this category seemed not of severe nature as probably nobody wanted to enter a cancer or severe situation by choice. Probably due to this reason, only a small number of people saw themselves getting into the situation on a voluntary base.

When describing how he got into the situation in which his arm started aching and came back four months later, an informant attributed it to himself for improperly using the arms on both occasions,

“My arm started aching. It seems to be associated with some work we did around the house… I think I walked into it. I’m the one who overstretched it. For both times that happened I know what happened the day before in each case, I would have pulled it.” (Informant #003, male faculty)

In another case where a student was researching diets, exercise and weight loss plans, she described it as something she voluntarily got into too because,

“No one has been telling me that I’m fat. I just feel overweight and have less energy than I would like.” (Informant #184, female undergraduate student)

Informants Felt Situation Imposed by Others

Informants saw themselves being formed into a situation out of two major reasons. One was that they saw the situation, in many cases undesirable problems related to health, as directly attributed to the mistake or incompetence of other people. The other was that they themselves felt the situation was just out of their personal control for whatever specific reasons that they did not elaborate. For these informants, they were not
prepared for the unwanted situation and the feeling of being thrown into one was implied, if not explicitly stated, in their interviews.

One such situation was offered by an informant who was dealing with his insurance company about a $600 medical bill for his daughter. The company refused to pay the bill and kept sending him bills for four or five times, with the problem still unresolved at the time of his interview after he filled out all the forms required. Pretty frustrated and angry, he saw himself dragged into the situation by others,

“Because I took care of what I thought I was supposed to be taking care of, but they didn’t take care of their side of it. The problem was not of my making.” (Informant #017, female faculty)

A student blamed the dental problem he encountered on his dentist who diagnosed him as having “dental erosion” five years ago and told him he could not drink anything with sugar in his whole life. Unconvinced about the diagnosis, he conducted more research on the subject and found out it was misdiagnosed. He felt the situation was imposed on him,

“Just because I was so young, I was like 18. I didn’t know that dentists were bad or incompetent or whatever, I trusted them so… It turns out that it was kind of treatable, not really treatable it was just kind of a couple of cavities. It looked like erosion. And he should have given me fillings. I think it was a misdiagnosis. And he was just so casual about this. Just oh from now on you drink water, he really didn’t make an effort and wasn’t very informative and stuff like that.” (Informant #328, male undergraduate student)

Informants Took the Situation as “Things Just Happen”

Some informants assessed their involvement on a more neutral tone. They did not think they entered the situation voluntarily, nor did they feel being imposed by the situation. Rather, various health problems just happened to them as a result of natural
occurrence, way of life, genetic dispositions, or unexpected accidents. In these situations, it was hard for them to identify a specific person or factor solely responsible for the initiation of a problem. In another word, diseases just happened to people since nobody wanted to be sick, and in most cases they felt diseases were unpredictable and therefore out of their personal control. For these informants, when health problems struck them or their loved ones, they took on things as they came along.

An informant was arranging care for her 88 years old mom-in-law who cracked her pelvic bone and needed to be moved to a nursing facility. While they had to take a lot of trouble comparing different options, she did not see the situation as imposed and gave the following answer,

“Well, I wouldn’t say its imposed because if its somebody we care about and would want to do that...to do this kind of thing. And it just happened because as people get older, they need more help. It just so happens that’s she's our family.” (Informant #008, female faculty)

Unexpected accident is another reason that led informants to see the situation as “just happened”. For instance, an informant suffered from a stress fracture in her leg and had to depend on other people for assistance to do many things in daily life. He perceived the situation this way,

“I would not walk into any situation where I would have a stress fracture. And it wasn’t beat me with a glove; it just happened because I was running one day and I was limping a little bit and yeah…” (Informant #350, female undergraduate student)

When unexpected illness struck a person, the big emotional blow and difficult-to-swallow reality made them feel overwhelmed instantly. The unforeseeable future of the illness and life also left them feel powerless before anything. An evidence was given by a young undergraduate student who was diagnosed with pre-cancerous cells that were at
the last stages before reaching cancer. The emotional and agonizing news overwhelmed her and made it difficult for her to find out whom or what to blame. She felt the illness just happened to her but still found it difficult to state it otherwise,

“That’s a hard one to explain because if you get cancer then you just get cancer, I don’t know what to say for that one…but obviously I didn’t choose to have cancer, I don’t know how to answer that one. Well, like I said, there’s nothing I could have done to have pre-cancerous cells or not have pr-cancerous cells.” (Informant #393, female undergraduate student)

Informants Saw Situation Caused by Multiple Factors

Other than the above three views, there were informants who perceived the situation from a more complex perspective. For them, multiple factors worked together to lead them into a situation. When talking about what caused the situation at the first place, they might feel powerless and not in control due to different reasons; however, the decision to deal with various problems was out of their personal freedom and choice. If they could not in any way control the arising of problems, they certainly could choose to participate in the situation actively to solve the problems. This did not mean that compared with other informants, these informants would definitely work harder or use more sources for input in subsequent information seeking, but it showed they were clearer about and elaborated more on their personally responsibility and active role in getting into and going through the situation.

When an informant’s son began to develop some physical problems due to lack of interest in regular school going, she and her husband started to look into the option of home schooling by turning to multiple sources for input. She perceived her entrance into the situation as having two contributing factors. She felt both imposed by the situation and at the same time sort of voluntarily stepped into it.
“I would say it was a combination of voluntary and being imposed on me. I voluntarily had a child, so I’m responsible for him, but I think that some of the things at school, I think they were out of our control; they were kind of imposed.” (Informant #083, female faculty)

Some other informants chose to pursue their problems even if they did not appear serious or imminent. They made a conscious choice to do this because they wanted to take personal responsibility for their own physical or emotional well being. One informant had a joint problem. After getting inadequate help from her doctor, she searched everywhere for information that could help her on all aspects of the illness.

“The wear and tear on the joints has caused this illness to develop [specific ailment] and then my voluntarily seeking information to deal with it instead of saying, “Oh the doctor will do what he needs to do.” I need to be part of my healthcare so that is the voluntary.” (Informant #092, female faculty)

<table>
<thead>
<tr>
<th>Perceptions of situation origin</th>
<th>Descriptions</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entered situation by free will</td>
<td>Informants saw themselves causing the situation or walking into the situation voluntarily</td>
<td>*I walked into it... because I was the one who overstretched the arm.</td>
</tr>
<tr>
<td>Situation imposed by others</td>
<td>Informants saw the situation caused by others’ mistakes or incompetence or by uncontrollable outside factors</td>
<td>*I took care of what I thought I was supposed to be taking care of, but they didn’t take care of their side of it. The problem was not of my making</td>
</tr>
<tr>
<td>Situation just happened</td>
<td>Informants saw the situation as a result of natural occurrence, way of life, genetics or accidents.</td>
<td>*That’s a hard one to explain because if you get cancer then you just get cancer, I don’t know what to say for that one</td>
</tr>
<tr>
<td>Situation caused by multiple factors</td>
<td>Informants saw the situation caused by outside factors but chose to deal with it voluntarily</td>
<td>*I would say it was a combination of voluntary and being imposed on me. I voluntarily had a child, so I’m responsible for him, but I think that some of the things at school, I think they were out of our control; they were kind of imposed</td>
</tr>
</tbody>
</table>

Table 4.2: Different perceptions of situation origin by informants in health situations
Identifying Information Needs

After entering a situation at a specific time-space, either voluntarily or forcibly, informants were confronted with a certain kind of health problem. The problem created a gap of some sort that stopped an informant in their actions or behaviors. At that moment, in order to move forward to solve the problem, informants needed to bridge the gap with helps from various sources they could access to. These sources provided them with input from which they made new senses of the situation that eventually helped to tackle the problem to come to a satisfactory or less than satisfactory solution. In many situations, informants might be clear at the beginning of what they needed before going out to get input and seek help; in other situations, their needs crystallized gradually as the situation unfolded to shed more light on the nature of the problem they faced.

Depending on what type of situation an informant is in, their information needs may vary by nature and number. Previous studies on information seeking in health context, most of which focused on cancer or other specific disease such as heart disease or diabetes, identified information needs on various aspects of an illness experience, from diagnosis, treatment, to coping strategies and the personal and social impacts. In this dissertation, informants faced a variety of health situations, through a detailed inductive analysis, two top-level categories of information needs emerged: disease-related needs and illness-related needs.

Disease-related Needs

Disease-related needs refer to the questions or concerns that an informant had regarding to the medical or technical aspects of a disease or condition. In this dissertation, as of the time of interview, few informants had or were working on a medical degree, nor
did many of them have had much experience with the health situation they were facing, so in general they were not familiar with the specifics of their medical condition. As a result, in almost all situations, informants had at least a question about an aspect of the condition itself. Most prevalently, they were concerned about one or all aspects of the process of a disease, from the cause of the problem, potential diagnosis, to treatment options and procedures, and possibility of recovery.

**Potential diagnosis**

For many informants in this dissertation, when they came across a medical problem, the most common question that first came to mind was “what is it?” Understandably, a person with inadequate medical knowledge wants to know the diagnosis as soon as possible to reduce the uncertainty or anxiety brought by the physical symptoms or emotional distress. To understand more about the problem, informants would not stop at only a medical term for diagnosis, they preferred more elaborations on the diagnosis, such as the characteristics of the disease, severity of the problem or the normal path of development of a disease.

An informant was notified by teachers at school that his daughter might have what they called a “sensory integration” problem. Having never heard of this learning problem, he tried to find a doctor who was an expert in learning problems and could do evaluations on his daughter. On his part, the major question was to understand what this “sensory integration” problem was and what it meant to have this condition. Similarly, when another informant’s dad got diagnosed with pancreatic cancer and later died from its complications, with little knowledge about the cancer, he did Internet search to understand the characteristics and the process of the cancer so that he could understand
“what my father was going through and what was happening to him.” (Informant #336, male undergraduate student)

Cause of problem

As mentioned above, a majority of the informants were experiencing a medical problem for the first time, it seemed the lack of experience and uncertainty propelled them to set their minds directly on the problem and the solution. A small number of informants differed from them in that they focused more on the cause of the problem, rather than the diagnosis and treatment. The difference was resulted from the fact that these informants had some previous experience with the medical problem and already knew the diagnosis. For them, the more critical issue was why the same thing happened to them again as a recurring problem. For example, a faculty informant reported having a second miscarriage from an unexpected pregnancy. Even if she was not trying to get pregnant, she was not excluding the possibility of having a second child either. With this future possibility, the most important question she wanted to know was “why might the miscarriage have happened?” (Informant #407, female faculty) since finding out the cause of the problem would help her to avoid another similar problem.

Treatment options/working of treatment

After the diagnosis question, what came naturally to most informants’ minds was how to solve the problem. At this stage, informants were facing questions at two different steps of treatment. Some of them were looking for all possible treatment options or alternatives so that they could pick the best one; others, after being recommended to go on with a specific treatment option, were concerned about the actual carrying out of the treatment, be it a specific medicine or a certain surgical procedure.
At the first step of treatment, informants did not accept the option recommended by their doctors without questioning. They wanted to investigate and get more comprehensive understanding of what other options were out there, especially when the ongoing treatment did not seem to clear up the problems. In addition, they wanted to be able to weigh the pros and cons of all alternatives to select the most effective treatment with the least side effects or potential negative consequences. In the case of informant #055, she had been suffering from severe allergic problems for a long time. The doctor put her on a medication that alleviated some of the symptoms, but failed to pinpoint the specific allergy. Not fully satisfied with the situation, she decided to pursue a specialist and explained why,

“I think taking a medication is a partial answer to that. It does help to alleviate the symptoms that I was experiencing for so long that were so detrimental to my life and my lifestyle but again it, how long do I have to take this medication I don’t know and I sort of another question that emerged at the point that you know I got this partial answer was the idea of well are there other ways of treating this? Do I have to take medication or is there another way of treating it? And I still don’t, I don’t have the answer to that and that is why I am pursuing a specialist.” (Informant #055, female faculty)

When a specific medicine or surgical procedure was nominated as the most possible choice, or sometimes the only option, informants’ needs shifted to concerns on the details of the treatment. For an unfamiliar surgery, they inquired about issues including the process, safety, aftereffects/effectiveness, and possible complication of the surgery. Similarly, informants expecting to take medications wanted to know more about the working mechanism, side effects, and evidence of effectiveness of the medicine, as in the case of informant #409 who, after getting many medication prescription for his
illness, wondered about how these medicines would work, how they would interact with other medications, and if they had any side effects.

**Issues on recovery**

As most informants were facing a medical problem that was considered mild or moderate in severity by doctors or themselves, it seemed plausible that they were not mostly concerned about the recovery side of the problem, assuming that a problem such as a strap throat or sprained ankle would not have much difficulty in recovering fully. The issue of recovery mostly stood out for informant who or their loved ones was suffering from a severe illness in a grave situation in which their life could be at risk. For them, a realistic prognosis, a projection of the possibility of cure or recovery would prepare them psychologically and emotionally for the worst results or give them reasonable hope for a good result. In these life-threatening situations, people were fully aware that things were unpredictable and anything could happen at any minute, but they would still prefer to be informed, even with the worst news they would ever want to hear, and could still face the dire reality with hope. An informant with late-stage cancer described what she wanted to know this way,

“I guess there’s things I still don’t know the answers to. So, it’s pretty much will I live? Can they cure me? But in some ways I have my answer and they cannot cure me. I would say that yes I have an answer- it’s not necessarily the one I want to hear. But I believe in miracles so…”

(Informant #066, female faculty)

Similarly, when a student’s father suffered the second fatal heart attack, even if he said that “there is no way of knowing if he’s going to pass away tomorrow… because of this heart attack in his life there is no way of knowing if his life is going to be shortened”, yet, he still wanted the doctors to give him answers on the prognosis, posing questions
like “Will my dad be ok? Will these measures that they took or they were taking help him to live longer?” (Informant #298, undergraduate student)

*Illness-related Needs*

In a health situation, a critical part is for medical professionals to make correct diagnoses, conduct effectiveness treatments and turn out a satisfactory recovery; however, the necessary medical care is only part of the story. Informants in this dissertation demonstrated a great interest in issues well beyond the medical or biological aspects of a health problem. These information needs ranged from arranging care for family, learning coping skill or strategies, trying to get emotional control, to understanding the illness’ impact on family life and hoping to get access to various medical and social resources and/or services. The fulfillment of these illness-related needs plays an indispensable role for informants in getting through their illness experience more smoothly.

*Patient care needs*

Informants’ needs for patient care varied from one another, depending on whether they themselves were suffering from a specific problem or they were facing the demand of someone else’s illness as the care taker. Typically, informants who were sick themselves could not perform some of the routine activities at work or at home due to the medical condition, therefore often phrased their needs as helps with those activities. For instance, a student got a leg fracture but had to continue to go to school and work. Having to use crutches all the time, she could not do many of the simple duties on campus. What she needed were some assistance from students and colleagues, such as opening doors, holding elevators, and carrying things for her. If informants were providing care to their
family or friends, they were mostly concerned about larger issues, such as identifying what care the patient needed and where they could get the care. When an informant’s 88-year-old mom broken her pelvic bone, her whole family was trying to work with the doctors to figure out what level of care the old lady needed and then the family needed to locate a facility where she could get assisted living. Another informant’s mother almost died from diabetes. What she wanted was to make a long-term care plan with other siblings to prepare for worsening situations.

Psychological/emotional impacts

It is common that suffering from a health problem often means suffering from physical pain and discomfort. Going through an illness is also often an emotional journey on which both patients and their families constantly struggled with all sorts of emotions, be it anxiety, distress, uncertainty, or confidence, hope and happiness. While most informants did not emphasize emotional impacts as their most important concern, emotions were always the undertone of their experiences. Still, a small number of them seemed to focus more on the emotional side of the illness for various reasons. A faculty’s wife had multiple sclerosis that compounded problems with his balancing of home life and career and with the marriage itself. To deal with the stress in their marriage that might have been partly resulted from his wife’s emotional changes due to the illness, he wondered, “how that particular disease affects a person psychologically and emotionally” (Informant #039, male faculty) so that he could better understand the changes in her life, what she experienced, and how the changes would affect her emotions and her dealing with their problems in life. Another informant who just started quitting smoking was
concerned about the withdrawal effects, especially how quitting would change his mood and emotions to be better prepared for the influence.

**Coping skills/strategies**

Illness usually brings about unwanted inconvenience into the patient and the family’s life. In the case of a chronic condition, the patient and the family have to live with the illness for an extended period of time; sometimes the illness becomes part of their identity to define who the person is. They need to deal with the physical discomfort and the emotional distress at the same time and during the process learned helpful coping skills and strategies. For informants in this dissertation, most of them were experiencing a problem for the first time, the lack of experience made it more precious to learn from other’s experience. This was why when asked what they needed in the situation, some informants said they most wanted to talk to people with similar experiences to learn “how do they get by” (informant #175, female undergraduate student). These first-hand experiences were thought to be more trustworthy and reliable than just hearing a doctor talking about it in general.

For some informants, they were looking for sources to learn practical skills or strategies to tackle specific problems. Informant #092 was tormented by the pain from arthritis but could not get the help from his family doctor about ways to deal with the pain. Instead, he turned to websites to search for effective pain management or relief tactics in combination with taking medicines. For a student who had difficulty in reading and understanding her class materials due to chronic ADD/ADHD disability, what was needed other than taking medication was different study habits, from “maybe academic
support counselor, somebody to help show me what I should be doing different, to use my time more wisely.” (Informant #227, female graduate student)

As discussed above, people in a health situation had to deal with various emotional issues. Obsession with negative emotions not only eroded their will to get better, but also interfered with the effectiveness of medical treatment. As a result, getting a right mindset and maintaining emotional control seemed very important to some informants who were overwhelmed by emotions. As an informant’s wife with cancer was going through multiple surgeries and chemotherapies, the experience was so traumatic to his whole family that they were at the brink of emotional breakdown. He felt he needed to “maintain some perspective on this without coming apart emotionally” (Informant #303, male faculty) in order to give her the strength to keep fighting for her life.

Healthy behaviors

Beside medical treatment and emotional control, dealing with a health problem also involved a change in lifestyle as unhealthy diet and behaviors contributed a lot to the problems they were experiencing, such as obesity, diabetes and heart disease. They all realized that a healthy lifestyle is an important element of the health equation. Three informants struggling with weight problem were searching for the diet and exercise plan that would suit them the most and that would help them to lose weight without hurting their health. One of them wanted to find some sample recipes to get her started. Another informant was also searching for recipes to cook healthy foods to take care of his father recovering from a heart attack. Informant #451, suffering from irritable bowel syndrome, hoped to find food choices to put more fiber in her diet.
Impacts on personal/family life

As illness often interfered with people’s normal life in minor or major ways, informants inquired about these impacts on the patient’s personal and/or family life. Questions about the impacts of illness were most often asked by informants who were dealing with a more severe situation and were concerned about the long-term effects or consequences of illness on the patient’s personal and family life, such as their mobility, family relationship, and social life. In the case mentioned above, an informant’s father suffered a heart attack. Since it was his second attack and doctors long ago gave them a pretty bad prognosis that his father would have died 10 years ago. After the second heart attack, his father had to work off of 25% of the heart function. In such a grave situation, what worried the informant, except for the prognosis, was how his father’s life would be affected by this in a long run, such as if he would be able to maintain his hobby of welding or if he could still enjoy some of the foods he always loved.

Health insurance concerns

With the hefty health care cost in United States, medical expense has become a major concern for millions of people who find it difficult to afford the increasing health insurance cost. In this dissertation, the informants being faculty and students, the worry about medical expense did not seem to be present on a large scale as most of them should have access to employee and student health insurance policy from the universities. In fact, only a handful of informants had questions regarding medical expense, with most of them dealing with a dispute with insurance companies for their failure to provide coverage for medicines or procedures. For another two informants, their situations revolved around looking for an affordable and good health insurance policy provider.
Informant #297, a student from a foreign country, had to go through a dental surgery. Unfamiliar with how health insurance works in this country, he worried about the cost of the surgery, being a poor student. The top question on his list was whether his insurance would cover the surgery and how much they would cover. Another informant kept getting a medical bill that he thought he should not pay, so he had to negotiate with the insurance company back and forth to make them pay the bill.

Access to resources/services

Dealing with a health situation successfully required a lot of things in place, including medical help by health professionals, home care by family members, as well as other necessary resources and social services that supported the medical and home care. Some of these resources or services were not available in some situation, which formed one or more of the obstacles that informants had to overcome. A critical resource mentioned by informants, especially students, was money. A lack of money often prevented them from getting help from a better doctor than the ones at their student clinics, as phrased by informant #238, a graduate student with a leg problem. Time was another resource that some informants needed more to take better care of their loved ones and keep up with their own school or work duties at the same time. A few informants felt a shortage of helpful social services needed for their situation. One of them, whose sons have multiple disorders, wanted access to educational services designed for special children; another informant was not successfully in finding free counseling service for his poor sister with mental problems; and a third informant got stuck in finding a lawyer who would value social justice more than money to actually take her case against a hospital for a “medical accident” that partially paralyzed her sister.
<table>
<thead>
<tr>
<th>Categories of information needs</th>
<th>Descriptions</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Potential diagnosis           | Refers to the nature and circumstances of a medical condition | * What is this thing called “sensory integration”?  
* I want to know what is wrong with me? |
| Cause of problem              | Refers to the reason that caused the medical condition to arise | * Why might the miscarriage have happened? 
* I want an explanation of why I got this. |
| Treatment options             | Refers to all possible ways or methods of dealing with a medical condition, such as medication and surgery | * What are the possible options out there to treat my mom’s diabetes?  
* Do I have to take medication or is there another way of treating it? |
| Working of treatment          | Refers to the details or process of how a specific treatment works, such as how a medicine works or the procedures of a surgery | * What is the working mechanism of this medicine?  
* I want to know what the weight loss surgery involves. |
| Issues on recovery            | Refers to issues relating to the recovery of a medical condition, such as prognosis and chance of cure | * It’s pretty much will I live? Can they cure me?  
* Was I going to recuperate? |
| Patient care needs            | Refers to needs to take care of a patient throughout the illness process, such as home care and rehab needs | * What level of care does she need?  
* Where does she end up? Does she stay at the duplex or does she move into assisted living? |
| Psychological/emotional impact| Refers to the impact that the health problem has on a person’s psyche, feelings and emotions | * How does that particular disease affects a person psychologically and emotionally? |
| Coping skills/strategies      | Refers to specific ways a person uses to cope with illness, cognitive, physical or emotional | * I want to find other people with the similar situation and see how they get by. |
| Healthy behaviors             | Refers to positive behaviors that help a person to maintain a healthy lifestyle, such as eating or exercise habits | * I need to add fiber into my diet.  
* I was looking for some recipes to get me started. |
| Impacts on life/family        | Refers to impacts that illness has on personal and social life, such as mobility, family relationship, and lifestyle | * Will he still be able to enjoy his hobbies?  
* How will this affect her mobility in long term? |
| Health insurance concerns     | Refers to issues relating to health insurance in a health situation, such as looking for affordable health care and dealing with medical bill payment | * Will my insurance cover the procedure?  
* I was looking for an affordable health insurance policy for my family. |
| Access to resource/services   | Refers to the needs to get access to resources or services, such as time, money and free counseling | * I wish I had more money to go to a better doctor.  
* I need to find free counseling service for my sister. |

Table 4.3: Categories of information needs identified by inductive analysis of interviews
Getting Input from Sources

When informants identified the information needs their situation posed, they resorted to different sources to gather input that may help them make new senses of the situation and experience to solve the problem. Sometimes, just one or two sources were enough to give all a user needs, other times multiple sources could not satisfy them. Even facing a similar situation, different people chose to use different sources. What predicts a person to select what sources and how many of them call for consideration of multiple factors. This is not the focus of the analysis in this section, but will be addressed in Dervin’s Sense-Making Methodology guided situational contingency analysis. The focus of the analysis here is to describe what types of sources informants used as well as a general picture of the source combination they preferred.

Number of Sources Used

In the interview, informants were asked to list all the sources they used in a specific situation. For the whole sample, a total of 476 sources were used in the 81 health situations, with each informant averaging about 6 sources (5.9 sources), regardless of informants’ demographical differences. Analysis showed that there was big variability in terms of the number of sources used in each situation. There were four situations in which the informants only used two sources, with one source being the informant’s own observation, thinking and reflection, and the other being different interpersonal sources, specifically a doctor, a professor and a family member. These informants came from all three academic rank, one faculty, two graduate students and one undergraduate student. The informant who used the most sources in a single situation was a faculty who used 17
different sources trying to deal with the impact of his twin sons’ multiple disorders on their school and life.

Looking across academic rank, there were differences in the average number of sources used. A total of 38 faculty informants used 259 sources in total, with the average number of sources used at 6.8. Among them the least number of sources used for one situation was 2 while the most was 17. In comparison, 118 sources were consulted with by 21 graduate students who averaged 5.6 sources per situation. The least and the most number of sources used per situation was 2 and 14 respectively. The subset of undergraduate student has 22 informants who turned to 109 sources for input, with an average of 4.9 sources per informant. While the least number of sources used was still 2, the maximum number of sources used per situation was 10. The following table is a summary of descriptive statistics for the three groups of informant in this dissertation.

<table>
<thead>
<tr>
<th>Academic rank</th>
<th>Total No. of sources used</th>
<th>Average No. of sources used</th>
<th>Most No. of sources used in a situation</th>
<th>Least No. of sources used in a situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>259</td>
<td>6.8</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td>Graduate students</td>
<td>118</td>
<td>5.6</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Undergraduate students</td>
<td>109</td>
<td>4.9</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4.4: Number of sources used by informants across academic rank in health situations
Types of Sources Used

In previous studies on health information seeking and use, scholars used different information sources versus information channels. While a source refers to the producer or designer of the message, the channel is the vehicle through which the message reaches the receiver (Schramm, 1955). In this dissertation, the sources used are put into the following six different categories, with an effort made to make the distinction between sources and channels at the same time.

a. Intrapersonal

An intrapersonal source refers to one that involves the input from inside of a person. Cognition is a major part of this intrapersonal source. For example, in a health situation, an informant used his/her own observation to notice any unusual symptoms that he/she experiences and used his/her own thinking to process relevant informant, integrated input from other sources, made a decision on what to do next, and recalled or reflected on the situation, etc. etc. It is beyond doubt that every one of us has to use our thinking and cognition in some way when trying to solve a problem or deal with an issue. In this dissertation, informants were asked if they used self’s observation, thinking and reflection and all but three used this source.

b. Interpersonal

As a previous study noted, given the nature of health situations, interpersonal sources were the most used sources by patients. Informants in this dissertation also selected various kinds of interpersonal sources to get helpful input. These sources fell into four sub-categories: formal, informal, health professionals and other professionals.
Formal interpersonal sources refer to people informants talked to in the working setting. Three types of formal interpersonal sources used included students/classmates, co-workers/colleagues and professors/advisors. Informal sources comprised of family and friends. The third type was called health professionals who were mainly medical professionals, such as doctors, nurses, psychologists and counselors. Given that all the situations were health-related and health professionals were traditionally frequently used in those situations, it is useful to separate health professionals out to distinguish them from the formal sources just mentioned. The fourth type of interpersonal sources used was other professional, such as pastors, lawyers and insurance representatives.

c. Library resources

As the sample comprises of faculty, graduate and undergraduate students across central Ohio colleges and universities, library is a resource they use pretty frequently in academic life. This user habit apparently transferred to their information behavior in non-academic life too. Analysis showed that informants used different academic library resources to deal with their health situations. To make the distinction between channels and sources again, they used both information channels and sources related to library resources. College, public libraries and library catalogs are the channels that helped to located contents, while journal articles, fiction and non-fiction books, and reference materials are the sources that provided them with specific content.

d. Mass media sources

Informants in this dissertation also went to traditional mass media channels for input. They used four media sources: newspaper articles, magazine articles, Television program or content and radio program or content. As pointed out by researchers, previous
studies did not make a clear distinction between channels and sources. For example, Television can be a channel that conveys content through specific programs, it can also be considered as a source if you talk about specific program or content. To make the distinction here, what informants used were actually sources rather than channels since they referred to specific articles in newspapers or magazines or specific program content on Television and radio.

e. Organizational

Health is an industry that involves various sectors of the society. There are government agencies that regulate certain policies, pharmaceutical companies that introduce new medicines, non-profit organizations that advocate patient rights, community organizations that provided social support to sick people. The list goes on and on. With the exceptional growth of the Internet, people now have a much more convenient way of getting information from these institutions. Sources under this category picked out by informants in this dissertation were government, various health-related organizations and commercial advertisements.

f. Internet sources

The last category of sources, also one of the mostly used sources by informants, was Internet-related resources. It was further divided into three sub-categories: search tools, service websites and personal websites. Two search tools used were electronic database searching systems and Internet search engine. These tools, by the strict definition of a channel, are actually information channels that helped informants to locate more relevant content. Chat room was the sole Internet service that informants used. Generally speaking, chat room provided a space where informants can interact with other
people with similar diseases and get useful advices and directions. The third sub-category included personal web pages and blogs (web journals). Similar to chat room, informants read about other’s personal experience with similar health situations, such as their testimonial of the effectiveness of certain drugs or surgical procedures, their coping strategies, the process of their recovery, diet suggestions, and so on. Sometimes, these personal web pages or blogs also provided links to other relevant and useful information.

Out of the above six categories of sources, one’s own observation, thinking and reflection was ranked as the most used source. 78 out of 81 informants used this source for input. The second most popular source was family and friends, as 73 out of 81 informants turned to their family or friends for input. Internet search engine followed self and informal interpersonal sources as the third most used source when 62 out of 81 informants said they used it at some point in the situation. The next three most used sources by order were medical professionals, library sources and formal interpersonal sources such as students and colleagues. Among the six most used sources, three of them fell into the interpersonal category, making it the most used sources across various health situations in this dissertation.

Among the 25 listed sources for informants to indicate if they used in the situation, only one of them, museum exhibitions, was never used in any health situation. Three other sources were used very minimally too. Fiction book was only used by one graduate student whose friend had a small lump in his rib cage. He read fiction books in which people went through similar threatening thing and that “kind of put in perspective for me” (Informant #245, female graduate student). The second least used source was libraries other than academic and public libraries. One informant used books from other
people’s personal collection during her cancer treatment, and another one browsed Mayo clinic’s online library to search for general information on his wife’s cancer recurrence. Radio program or content ranked as the third least used source by only four informants. A diabetic informant listened to a call-in radio show to know what issues other diabetic patients face and how they cope with them, while another informant who was considering going through weight loss surgery got names and contact info of clinics that perform the surgery from a call-in program that talked about different surgical procedures.

*Repertoire of Sources Used*

After Heeter and Greenberg (1985) developed the concept of repertoire, researchers started to look at the different mix of channels or sources in information seeking and use studies. However, until now, only a small number of studies investigated in this direction and even fewer study on health information seeking paid enough attention to this concept. In this dissertation, given the huge variability in the number of sources informants used (ranging from 2 to 17) out of the 25 specific sources and the numerous combinations of sources possible, it is rather difficult to identify any patterns this way. An alternative way is to look at the combination pattern by focusing on the different mixes of the six categories of sources, described earlier in this section, used by informants. One thing to note is that an informant only needed to use any sub-category source under a main category to be considered using the main category.

Among all informants, 53 of them (65.4%) were found to use one of four combinations of sources in their health situations. Topping the list was the combination of self, interpersonal and Internet resources selected by 18 informants (21.8%). Following this were 14 informants (16.7%) who chose a mix of self, interpersonal, library resources
and Internet resources. Additionally, while 12 (15.4%) of all informants only used two
types of sources, self and interpersonal sources, to get the input needed, another nine
(11.1%) informants resorted to all six categories of sources for input. While the majority
of informants did follow a pattern of source use, there are still 18 informants, close to one
fourth of the sample (22.2%), whose use of source combination was totally unique to
themselves and their situation.

Looking within each academic rank, faculty, graduate and undergraduate students
shared a certain source combination pattern but differed in others. For faculty informants,
the most common source combination was using self, interpersonal, library and Internet
sources (11 out of 38 informants, or 28.6%), followed by the use of all six categories of
sources combined (7 out of 38 informants, or 17.1%), and the combined use of self,
interpersonal and Internet sources (5 out of 38 informants, or 13.2%). Only four people
(10.5%) did not share their source combination with any other informant. The picture for
graduate student is interesting in that three different combinations had the same number
of informants using them. Three each, a total of 9 out of 21 (14.3% each) graduate
students, selected either the mix of self and interpersonal sources, self, interpersonal and
Internet sources, or the mix of self, interpersonal, Internet plus library sources. Six of the
graduate students (28.6%) used a unique combination of sources. For undergraduate
students, only two patterns emerged. While nine out of 22 (40.9%) of them used self,
interpersonal and Internet sources, five of them (22.7%) were satisfied by only self and
interpersonal sources. In addition, eight other undergraduate students (36.3%)
demonstrated a unique mix of source use of their own.
In summary, a common source use pattern prevalent in all three academic status group was the combination of self, interpersonal and Internet sources. While the majority of faculty informants followed one of three sources use pattern, graduate students did not clearly favor a specific pattern out of three. While about 63% of undergraduate students showed two different patterns, almost 37% of them did not follow a pattern at all, with the percentage much higher than graduate students (28.6%) and faculty (10.5%).

<table>
<thead>
<tr>
<th>Use frequency</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of sources</td>
<td>Self (n = 78)</td>
<td>Family &amp; friends (n = 73)</td>
<td>Internet search engine (n = 62)</td>
<td>Health professionals (n = 40)</td>
</tr>
<tr>
<td>Most used sources</td>
<td>Museum exhibitions (n = 0)</td>
<td>Fiction books (n = 1)</td>
<td>Other libraries (n = 2)</td>
<td>Radio programs (n = 4)</td>
</tr>
<tr>
<td>Least used sources</td>
<td>Self, interpersonal and Internet (n = 18)</td>
<td>Self, interpersonal, library and Internet (n = 14)</td>
<td>Self and interpersonal (n = 12)</td>
<td>Self, interpersonal, library, mass media, organizational and Internet (n = 9)</td>
</tr>
</tbody>
</table>

Table 4.5: The most, least used source and source combination in the order of use frequency for all informants in health situations (Total N = 81)
Intervening Conditions

During informants’ information seeking and use experience, two factors intervened to constrain their information behavior; especially their source using and the quality and amount of helps the sources could provide them. Conceptualized as two information barriers, one of them prevented informants from accessing certain source or channel that they preferred but could not reach. The other type of barrier was related to the characteristics, weaknesses or limitations of the sources used that in some way did not give them the best help they had hoped for.

Barriers to Access Sources

In general, informants could access the sources that they wanted to use, still about one-fourth of them mentioned that they were not able to get to at least one source or channel that they preferred. The access barriers that prevented them from doing so fell into two big categories: situational and personal barriers.

Situational Barriers

The major situational barrier was related to the time-space constraints of the situation. When a health incidence took place at a specific time and place unexpectedly, such as a injury from a car accident or a sudden blood sugar surge at the middle of night, the inconvenient time and location made some sources, usually family members and medical professionals, unavailable at that specific point of time. Even if the informants were reflecting back on the whole situation during the interview, they focused on the moment of happening since these situations usually had a short time-span and needed to get a solution quickly. Another situational barrier had to do with the physical distance between the informant and the source desired. The three informants citing distance as a
barrier were all trying to get to their family members living in another place since what
they needed from them could only be fulfilled by a meeting in person. For another three
informants, the source they wanted was simply not accessible or available in that
situation, with no one to blame for. In one case, a journal needed was not subscribed to
by a library, and in another case the informant was still on the waiting list for a speech
pathologist.

*Personal Barriers*

The biggest personal barrier that prevented informants from getting to their
preferred source was lack of resources, in the form of time, money and a medium of
communication. Three informants did not have enough time to seek out a source they
liked. In all cases the source was usually not a critical one and informants already
consulted with other sources, though adding this source would be helpful to provide more
relevant information. One informant traveled a lot and thus did not have time to go to the
library physically; instead he used a lot electronic sources. The other two informants
wished they could talk to more insurance providers to find the best insurance policy, but
the often time-consuming interaction stopped them from looking further.

When lack of money kept informants from certain sources, they were all looking
for extra medical professionals that could offer them better or targeted care, except for
one informant who complained about not having money to subscribe to an institution’s
website service. All these informants were not surprisingly students who either only had
student insurance or did not have insurance at all. They could use the service at student
health clinics, but wished to see a specialized professional or an expert for their health
problems, such as a psychologist who could formulate a specific treatment plan for an
informant’s depression episode or a gynecologist who could help better with birth control than a budget-tight small clinic.

The two situations where informants could not reach a source for lacking of a way of communication were both accidents where somebody got injured. Without carrying a cell phone at the time, both informants could not contact the source needed at the location of the accident.

The second type of personal barrier got to do with informants’ motivation and effort. Only two informants said they could probably talk to a doctor to help with their problems but was not motivated enough to do so. Although one was dealing with his chronic sore knee and the other was taking care of his diabetic girlfriend, one thing they had in common was that they both had a lot of experience dealing with the problem. Therefore, going to see a doctor was not highly necessary at that time if only it might help to solve the problem more quickly.

*Evaluation of Sources*

After informants consulted with various sources, the input of source helped them in many different ways, as will be shown by the analysis of information helps below. However, due to some factors related to either the content of the input, the source that provided the content, or the channel that carried the content or the situation in which an informant was in, the input did not satisfy all informants’ needs and wants. These factors, called relevance in traditional information seeking and use research, became the second type of information barrier that prevented informants from getting the fullest help expected from their information seeking experience. These barriers are categorized into the four general types below.
Barriers Related to Sources

The analysis on source use in the previous section revealed that except for the use of one’s own observation, thinking and reflection as intrapersonal source, interpersonal sources, whether formal or informal persons, were used the most for input. Government agencies or institutions are another source of input. Given the difference among them, a different number of judgment criteria were found intrinsic to them.

A. Self as a Source

When evaluating one’s own observation and thinking as a source for input, informants identified six evaluation criteria, ranging from their medical expertise, their effort of information seeking, to the experience they had dealing with similar situations. Lack of expertise

Understandably, informants listed the lack of expertise as the first and foremost barrier that stopped them from understanding the health situation as well as making optimal decisions. They talked about expertise in the form of medical knowledge from formal training in general and knowledge about a specific disease or condition in particular. Since most of them did not have medical degree, they felt unconfident in their ability to understand the illness situation and thus inappropriate to make critical health-related decisions with only very limited knowledge on biology. To make up for the weakness, they had to look outside for information from other sources. Even with this, some of them still felt inadequate and unqualified when the disease was severe and too challenging. As expressed by an undergraduate student who was facing a decision to remove pre-cancerous cells through surgery, knowing nothing about the disease, she felt
that she “just had to listen to what the doctors had to say” (Informant #393, female undergraduate student).

Lack of objectivity

Related to the lack of expertise was the barrier of lack of objectivity. Just because they felt that they did not have adequate medical expertise to understand the situation, some informants thought their own point of view would be too subjective to be accurate or valid. Specifically, these informants thought that people tend to bring their own perspective to a situation or use their per-conceived notion to look at a problem at hand. When that was the only source they depended on, they were afraid that the pre-fixed perception would subjectively influence their ability to make judgment and decision. Besides, their own perception was likely to limit their visions to only focus on certain issues while totally ignoring other useful perspectives. Therefore, outside sources with more objective opinions or comments were needed to compliment one’s own judgment. It is also interesting that more faculty members considered this as a barrier than undergraduate and graduate students combined. While students did not elaborate much on why they needed outside sources other than simply stating that it was just their own view, it was the faculty members who worried that their perception would “influence me poorly” (Informant #039, male faculty) and their own perceptions and reflections “would lead to very inappropriate decisions” (Informant #067, male faculty).

Lack of previous experience

There were only five informants who cited lack of experience as a barrier that prevented their own observation and reflection from helping them more. Although none of them elaborated much on how specifically lack of experience interfere with their
ability of helping themselves, it seemed that in more severe health situations, previous experience with similar situations was rated more important than in mild illness situations. In the same vein, faculty seemed to consider lack of experience more as a barrier than students. For example, in the two more severe cases, one cancer and the other a surgery, the two faculty members thought their own observation and thinking provided them little help just because they both did not have enough experience. In comparison, in the three other minor cases with students, their lack of experience did not stop them from rating very high of their own observation and reflections.

Lack of information seeking effort

The next barrier is related to the effort that informants put into seeking information and input. Four informants thought they did not put enough effort in their information seeking. They either did not pursue the matter in depth by following up sources into greater depth or stop short of talking to all possible people, professionals or family or friends, to get all possible relevant information or find a better treatment option. As a result, they were content with what they got, but believed that there is always more relevant information out there and people could get them if only they pursue it more thoroughly. One thing to note is that all the four informants who thought they did not put enough effort were faculty members.

Lack of rationality

Health situations can get quite emotional for informants involved. When people are over emotional or even break down emotionally, too many thoughts and concerns plus emotion run through their heads, making it more difficult for them to make sound judgment and decisions. This lack of rationality was another barrier cited by informants.
However, there were only three people said they were blocked by this, among them two were undergraduate students.

B. Formal and Informal Persons as Sources

When informants looked back at what prevented interpersonal sources, including formal and informal persons, from helping them more, in addition to the criteria of expertise, previous experience and objectivity shared with self as a source, they talked about four other different barriers they came across: lack of resources, lack of efficiency, lack of capability, and lack of emotional support.

Lack of expertise

While evaluating informal persons, such as family and friends, and formal persons, such as doctors and other professionals, except for the same two dimensions of expertise identified in self as a source -- lack of medical training or lack of specialized medical knowledge -- another dimension, credibility, was found to be a barrier. Analysis revealed that credibility is more of an issue when some informants talked about people they interacted with on the Internet, either through chat room or on their personal web pages. Since they held suspicions about the true identity of these people, they thought of them as not credible enough to offer advice on medical issues that require expertise and knowledge.

Lack of resource

Lack of resource included lack of time or money. There was only one informant who thought it would be of more help if her family had more money to pay for her health insurance. Comparatively, sources who were thought to should have invested more time to help informants but did not were health professionals, mainly family doctors. They did
not have time to “sit down and discuss how to treat” a disease other than just “working on the symptoms” by prescribing pills (Informant #015, female faculty); they did not spend more time with informants to discuss other treatment options; nor did they have enough time to monitor “how treatments went and to see how it needs to be adjusted” (Informant #227, female graduate student).

**Lack of experience**

Unlike assessing self as a source when informants did not elaborate on what they specifically meant by “experience,” when evaluating interpersonal sources, informants thought what these people lacked were the experience of going through the same situation before themselves or the experience of being closely involved in the current situation with them, such as family members witness the situation at close range and knew what informants were going through each day. This lack of direct experience made them less helpful in giving advice on how to deal with the problem other than in providing emotional support. Among all the interpersonal sources, health professionals was the only source that no informant assessed as lacking experience even if they personally did not have that particular disease.

**Lack of efficiency**

Lack of efficiency was only found to be a barrier in health professionals among all interpersonal sources in informants’ evaluation. Informants who mentioned this mostly were not satisfied with the long time it took for physicians to diagnose their problems, especially when they thought what they had was not a severe illness, such as allergies or earache. In one case, it took the doctor four months to find out allergic
problems for an informant. Other complaints were targeted at the difficulty in scheduling and long time needed to wait for a medical appointment.

**Lack of capability**

In a health situation, informants got emotional support mostly from informal persons such as family, friends and colleagues. At the same time, they were thought to have limited capability in terms of helping in other ways by a few informants. In fact, these informants thought their family could only do so much by filling the needs of understanding, encouraging and listening to them. For colleagues, they helped by picking up slack at work and reducing their workload. For other needs, they would have to resort to other sources as they were beyond the capabilities of informal sources.

**Lack of emotional support**

In almost all situations, informants reported that they got a huge amount of social support from interpersonal sources. In the three cases where informants expressed need in more support, they were looking for them from people who were capable of giving the support but were not necessarily obligated to do that. Thus, it is understandable that the lack of understanding, listening or sympathy assessments were given to professors, students and classmates who did not share a close personal relationship with the informants.

**Lack of objectivity**

There were only two cases in which informants thought other people’s lack of objectivity posed a barrier to help them. Similar to the credibility evaluation, for both situations, those who were thought to lack objectivity were people informants knew in chat rooms. This is interesting that it seemed the two informants did not have a concern
for objectivity of interpersonal sources they knew personally but thought the opinions of people they did not know might be colored by their experience and beliefs.

C. Institutions as Sources

The institutions consulted by informants included government agencies, non-profit organizations, and other institutions that offered health information or health-related services. There were two factors that prevented institutions from giving informants more help, one concerning the ways institutions handle problems and the other involving the resources they had to solve these problems.

Lack of efficiency

Having to deal with the bureaucratic characteristics of government agencies and other institutions is the major complaint of informants in evaluation of their helps. In order to get some information or services, or get answers to a question from people in the charge, informants sometimes had to go through all the red tapes, bureaucracies, and evasion of responsibility that usually made their information seeking very time-consuming and slow.

Lack of resource

Only two informants mentioned the lack of resource as the barrier of institutions to offer them optimal help. Both informants were students using either school student health center to get counseling or a planed parenthood clinic to get prescriptions. One informant felt that the school counseling center did not have enough funding to hire more counselors to get more involved with the students seeking help, the other did not get the prescription that worked better for her symptoms since the clinic could not afford to carry them.
Barriers Related to Channels

Informants also identified limitations of the channels that conveyed information to them. The criteria they used to describe the limitations included the interactivity, the ease of use, and availability of these channels, either traditional mass media channel or Internet channels such as chat rooms.

Lack of interactivity

Lack of interactivity is a major barrier that inhibited information channels’ ability to help for both traditional mass media channels and Internet gateways, but the meaning of interactivity differs for the two types of channels. For mass media channels, such as book or radio, informants felt the lack of interactivity in the sense that they had to read the book or listened to a radio program passively and had no way of choosing what was presented there. With Internet gateways, such as search engine, personal web page or chat room, a certain degree of interactivity existed that they had the autonomy to select what they wanted to read on the Internet and could interact with others in a chat room through written communication. However, they still felt these channels lack interactivity in terms of interacting with another human being who could talk back to them and diagnose them in a face-to-face setting. For some informants, an in-person meeting appeared to hold more credibility and trustworthiness than interacting with someone on the Internet without knowing their true identity.

Lack of availability

Whether a channel was available determined directly whether and how much information informants could get from that channel. In most cases, informants could access the channels they needed, and only in a few cases informants were not satisfied
with the availability of mass media channels. The limited availability all seemed to result from the ways mass media channels work, specifically the time scheduling of program content. For example, one informant got summary information on a certain disease from TV programs, but once the program was broadcast, it was difficult to locate it again in a library or in the archives of the station. Similarly, a radio program helped an informant to understand some issues relating to his condition; however, given the way radio is run, the program only had limited time which compromised the depth of the program and its helpfulness.

**Lack of ease of use**

The easiness that a channel can be used also influenced the motivation of an informant to use it to seek information as well as the quantity and quality of information found. Among the informants, only two came across difficulty in using a specific channel, Internet gateways in both cases. One informant using chat room to interact with people with multiple sclerosis found it quite inconvenient to use because he had to sign up or subscribe to a specific online session and show up at specific time. The other situation involved a student searching for information on government websites. The poor design of the website made it too difficult to navigate to get any relevant information.

**Barriers Related to Information Content**

Information content refers to all the input gathered by informants from all possible sources. They made up the basic fodder for information’s sense-making activities in health situations. Analysis on source evaluation identified eight dimensions of information content that offset their usefulness and helpfulness to informants in solving their health problems.
Applicability of information

The most often used criterion by informants to judge the usefulness of information was whether they were applicable to their situations. There were two types of input that they found inapplicable and the information could come from all sources possible. The first type of input was medical knowledge of some kind that they found difficult to put into practice. They might understand the words and terms in a reference book or journal article, but it was hard to transfer the newly acquired knowledge to understand their own situations. The second type of input limited in applicability has to do with case studies, examples and stories of people in similar situations, a lot of them located on personal web pages and blogs. While informants did learn something more or less from these experiences, such as getting inspiration and better understanding the illness experience, they often felt them less applicable as each person’s situation is unique and individualized, so other’s suggestions and opinions based on their experiences just could not answer their specific questions and problems.

Specificity of information

Informants needed general and summary views on a certain health problem, but more importantly, they needed information in specificity and depth to help them better understand it to make judgment and decisions for their own individualized cases. While reference books served as an efficient tool to give an overview or summary of a health problem, their lack of specificity, detail or depth did not help informants get farther. Doctors were also hoped to be more specific with patients when giving out instructions and advices. In one case, the informant felt the doctor was not specific enough in elaborating on the preventive measures required of his father to recover from a second
heart attack. Instead of explaining those dos and don’ts in greater detail, the doctor just gave him “blanket answers” as orders, which was resisted by his father for fear of giving up his lifestyle and hobbies. One thing to note is that among the informants who expressed needs in information in depth, none of them were undergraduate students while the majority of them turned out to be faculty members.

Objectivity of information

When a commercial motive was behind a source, informants tended to question the objectivity of the information provided. The information that people complained the most of lacking objectivity was commercial advertisements or materials, either from commercial websites, printed newspapers, a health radio program sponsored by a drug company or TV commercials. The single reason for this worry is quite easy to understand. Commercials are designed to promote and sell to make a profit, so they might be biased to a particular medication or products not to reveal the downside or the negative aspects of them.

Consistency of information

As informants in this dissertation used an average of 5 sources to get input, it would be easier for them to make a decision if they got consistent input across different sources. However, when the input were inconsistent or even contradictory, informants could not help feeling confused and casting doubt on the credibility of the sources. Three sources were reported by informants to provide inconsistent information. Sometimes different doctors gave different answers or analysis to the same problem; sometimes journal articles presented inconsistent research findings across studies. The major source of inconsistent information was websites. While the Internet search engine could direct
informants to a myriad of websites with tons of information, the conflicting or contradictory input from them made it hard for informants to judge what to believe and subsequently delayed their decision making process in some cases.

**Quantity of information**

To make an informed health decision, informants felt they needed enough good-quality input. Meanwhile, quantity was another criterion they used to evaluate the information. From the interviews, it seemed they did not feel a lack of information in terms of its amount, what bothered them more was the incompleteness of information. The incomplete information usually came from professionals partly because they did not have enough time for extended consultation sessions with patients and their family who needed more than just a simple diagnosis and the necessity to go through a treatment.

Another source that often offered incomplete information was commercial advertisements or materials. The format of advertisement only allowed limited space or time to provide limited information. Besides, the nature of advertisement is to persuade people to purchase and consume something. In the case of health industry, advertisements are designed to persuade patients and their family to consider using certain drugs or going through a procedure. Due to the commercial motives behind the messages, advertisements might choose to leave out some negative information, which made the content they contained incomplete in some informants’ judgment.

**Difficulty of information**

Out of 81 informants, only six of them said that their information seeking and use was hindered by the difficulty of information they got. The sources that provided the information are medical journal articles and reference books. Medical journals gave them
the results of previous and more recent research studies regarding the individual health problem they each faced; however, the technical terms and jargons made it so hard for them to fully understand the findings. While reference books were often a good source to check for the meaning of medical terminology or understand a specific procedure, still they contained technical terms hard to comprehend. One thing to note is that among the six informants, an equal number of faculty, graduate and undergraduate students were bothered by the technical terms.

**Currency of information**

As the medical fields changes so quickly with more and more new technologies and innovative treatment options, the currency of information provided by various sources was an important concern for some informants. Four informants were looking for the most up-to-date information on available surgical procedures for different situations, including brain surgery, hysterectomy, and weight loss surgery. While health problems varied, they shared the commonality that some of the information found was outdated and they all came from the collections of public libraries.

**Accuracy of information**

In general, informants did not see the accuracy of information as a problem and showed enough trust in the quality of input they got from different sources. However, four informants did worry about if the information they got were accurate enough. Looking at the sources of the suspected input, they were all content on the Internet, indicating that even when there is more and more credible health information online, some people still had reservation about the accuracy of online information.
Barriers Related to Situation

In addition to the barriers mentioned above, certain characteristics of a situation presented extra barriers for informants to get the maximum help even if they were able to access necessary sources or channels that helped them in the way they should. These barriers came from the uniqueness, the unpredictability and the inresolvability of a situation.

Uniqueness of situation

When a situation was very unique and individualized, an informant might find it difficult to get helpful input no matter how they tried. This happened to a handful situations in the study. In one case, an informant’s wife was diagnosed with a very rare form of cancer and could hardly find anything relevant to her condition. Because of its rareness, it was also hard to find any comparable situation and transfer the experience to the situation at hand. Another situation, in which an informant and his wife had been dealing with the multiple disorders of their sons for over a decade, was unique in terms of its complexity. As the situation involved many different aspects and factors, when it changed as the children grew up, this couple is still trying to figure out the best way to treat them while giving them a normal school life.

Predictability of situation

For some informants, the result of their situations was so difficult to predict at the time of their reflection that they could get some input here and there, but not any source could give them a definitive answer. These informants usually were engaged in a serious illness situation, aggressive cancer or massive heart attack for example, where too many things were still unknown to predict the progress or possible recurrence of the disease.
Without the predictability, informants could get estimation, probability or possibility answers to their problems, but failed to get any definitive answers desired from anywhere, even the doctors.

**Resolvability of situation**

While most informants were able to find at least a partial resolution to their problems, three of them were trapped in a situation that they considered just not resolvable at all. Sometimes a physical symptom was beyond the ability of current medical knowledge to pinpoint, other times the situation did not have a solution on the horizon since treatments for the disease simply did not exist at the moment. The inresolvability also got exemplified in situations in which there were too many possible reasons behind it but it was impossible to tease out the one that could explain it in aftereffect, as in the case of a mysterious miscarriage suffered by a faculty member.

The following is a table summarizing all the criteria informants used to evaluate the relevance of sources, channels, information content and the situation.
<table>
<thead>
<tr>
<th>Criteria grouping</th>
<th>Criteria characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Criteria related to sources</td>
<td></td>
</tr>
<tr>
<td>a. Self</td>
<td>Expertise</td>
</tr>
<tr>
<td></td>
<td>Objectivity</td>
</tr>
<tr>
<td></td>
<td>Previous experience</td>
</tr>
<tr>
<td></td>
<td>Information seeking effort</td>
</tr>
<tr>
<td></td>
<td>Rationality</td>
</tr>
<tr>
<td>b. Formal and informal persons</td>
<td>Expertise</td>
</tr>
<tr>
<td></td>
<td>Resource (time and money)</td>
</tr>
<tr>
<td></td>
<td>Previous experience</td>
</tr>
<tr>
<td></td>
<td>Efficiency</td>
</tr>
<tr>
<td></td>
<td>Capability</td>
</tr>
<tr>
<td></td>
<td>Emotional support</td>
</tr>
<tr>
<td></td>
<td>Objectivity</td>
</tr>
<tr>
<td>c. Agencies and institutions</td>
<td>Efficiency</td>
</tr>
<tr>
<td></td>
<td>Resource</td>
</tr>
<tr>
<td>B. Criteria related to channels</td>
<td>Interactivity</td>
</tr>
<tr>
<td></td>
<td>Availability</td>
</tr>
<tr>
<td></td>
<td>Ease of use</td>
</tr>
<tr>
<td>C. Criteria related to information content</td>
<td>Applicability</td>
</tr>
<tr>
<td></td>
<td>Specificity</td>
</tr>
<tr>
<td></td>
<td>Objectivity</td>
</tr>
<tr>
<td></td>
<td>Consistency</td>
</tr>
<tr>
<td></td>
<td>Quantity</td>
</tr>
<tr>
<td></td>
<td>Difficulty</td>
</tr>
<tr>
<td></td>
<td>Currency</td>
</tr>
<tr>
<td></td>
<td>Accuracy</td>
</tr>
<tr>
<td>D. Criteria related to situation</td>
<td>Uniqueness</td>
</tr>
<tr>
<td></td>
<td>Predictability</td>
</tr>
<tr>
<td></td>
<td>Resolvability</td>
</tr>
</tbody>
</table>

Table 4.6: A summary table of all evaluation criteria related to information sources, channels, content and situation
Outcomes

Information Helps

Despite the limitations or barriers of sources, channels or information shown by the analysis above, the input from them gave informants numerous assistance in tackling and solving their problems. Open coding identified 12 sub-categories of helps as listed below. These helps helped informants on their journey of information seeking and use from different angles, for example, by providing link to other sources/information, helping them to take actions, providing social support or keeping control of the troublesome situation. The following is a detailed description of each sub-category of helps. It is important to know that not all informants got all the helps in a situation, nor did they get them in the exact order as below. This is only a way to organize the different ways of helps more logically.

Got Connected to Sources/Information

Given the limited medical knowledge of most informants, they wanted to find credible information from credible sources. The various sources they consulted with played an important role in getting informants connected to sources or information that they were not aware of. Eleven out of the 25 sources lead them to other useful sources or information in one way or other. Interpersonal sources referred doctors and physicians, sent relevant articles or websites and directed informants to health resources, while they usually got names of clinics, phone number and other contact information from more traditional media channels, such as radio, TV program and commercial advertisement.

A major way for informants to connect to useful information was through the search functions of three information channels: catalogue, database searching system and
the Internet search engine. These three channels provided informants a quick mean of access by using targeted search terms. Catalogue was used to find books and sometimes audio-visual products and specific database was used to find journal articles online. Many informants seemed to look at electronic database searching system as the same thing as Internet search engine whose primary role was to direct informants to other sources of information. The search engine helped to fulfill different needs of informants as regard to connecting to sources. Sometimes informants searched a broad term to get a plethora of sources to increase the breadth of information, sometimes they used a more refined term to narrow down the number of sources, still other times a search was only carried out to locate one particular website, such as WebMD.

Got General Pictures/Understanding

In a health situation, an informant may be facing one or more specific problems or questions. Before making decisions on solutions to deal with them, many informants preferred to get an overview or general information to help them understand the situation as a whole. This provided a background or context for the core issue of the situation. Informants tended to get general information from medical reference books and through other mass media channels. Reference books were very useful in giving them a short and concise summary on certain diseases, such as a thyroid disease or a form of cancer, usually in terms of symptoms, progress and treatment. Mass media offered general information of another kind. Compared with reference books, a radio or TV program, a newspaper article or a book in public library could do a better job in raising the public’s awareness of the current status and development of some national public health threats, such as osteoporosis, obesity and diabetes, to name a few.
Got Motivated/Started

When facing a health problem, informants in this dissertation in general were self-motivated to seek information at the beginning. It is easier to understand this high motivation because the problems directly impact their or others’ health and could result in very negative consequences. If they did not feel confident about the level of their medical knowledge, they knew at least that they had to rely on themselves to understand the situation and try to be actively involved in decision making for their health care. To supplement with their self-motivation, input from other sources provided an entry point for them into looking at the situation. Informants showed difference in how they started the information seeking with the input. For some informants, constructive discussion with family or friends generated some ideas that helped them get a focus to pursue when they did not know what to do. Other informants preferred doing Internet search, using key words to expose to a breadth of relevant topics first and then zero in on his/her problem through a process of selecting and narrowing down to the key sources with targeted information.

Got Helps to Make Decisions

In a health situation, two most important questions for informants concern two aspects: what is the problem and how to fix it. While traditionally it was usually in the doctors’ power to make diagnosis and treatment decisions, with the shift to a patient-oriented model, sources other than health professionals also provided input to help informant jointly make these critical decisions.

In this dissertation, interpersonal sources, such as family, friends or colleagues, usually helped informants’ decision-making by offering possible diagnoses for them to
consider. The recommendations came from their previous experience or those they heard from people they know. When informants were at the stage of looking for the correct diagnosis, these input “offered up more possible diagnosis” that gave informants “something to look up and research” to see if one of them would match up with their symptoms (Informant #055, female faculty).

Input from other mass media and Internet sources also raised the awareness of some options for informants, often in treatment and patient care. Journal articles and newspapers reported on the most recent research and treatment alternatives for some diseases, as well as introduced the popular diet and weight loss plans. Government agencies and other organizations offered options in rehab, counseling and other social services. Commercial advertisement let known some of the new drugs out there. In addition to introducing new treatment options, the sources also presented the most recent research findings and statistics on the effectiveness of a certain treatment or a clinical trial result of a new medication. All these exposed informants to more alternatives and presented supporting or opposing evidences useful for them to make an informed choice for the ultimate treatment decision.

As for health professionals as sources, what they typically did to help informants make decision was to tell them their diagnosis and the treatment plans. While many informants still took doctors’ words as authoritative and virtually followed their decisions, there were those would search for second opinions and a balanced view from others and brought them into the decision-making process. When the second opinions from others confirmed or verified doctors’ point of views with their judgment or experience, they alleviated informants’ worry and gave them more confidence in making
the decision following doctors’ suggestions; when they got objections or oppositions, this motivated them to do more in-depth research and more seriously weighed the pros and cons of different options before making the final choice.

*Got Directions to Follow*

Information sources not only gave informants credible input to help jointly make important treatment decisions but also in some cases provided them directions in terms of specific things to do or say to solve the problem. Again, due to the lack of medical expertise, informants seemed more willing to follow what health professionals told them to do or say even if they got similar advice from people who went through similar situations before. They would use others’ advice as reference but still opted to listen to doctors’ instructions, believing in their authority and credibility in medical issues. In these situations, a doctor could tell an informant the most important thing to do, thus setting up the priority for the situation. They could recommend the best course of actions among alternatives for an informant to go along with. For patients recovering, a doctor explained the steps of home treatment so that their family could perform them at home to provide care. They even advised informants on what things to say to help others better understand a health condition, as in one case in which the parents of disabled children learned what to say to explain the disorder their son suffered to get more accommodation and patience with them from teachers and students at school.

*Got Hows (Procedures/Strategies/Examples)*

During the course a health situation, informants expressed needs in knowing specific methods or strategies to solve their problem after a decision was made. These hows, as a subset of helps, eventually helped them to reach their ultimate goals.
Analysis showed there were three types of hows that information sources helped to provide. The first type was about medical procedures needed as part of treatment. Given the limited time in doctor consultation, informants mostly resorted to printed or online sources, typically medical journals and reference books, to get detailed descriptions and explanations of a specific procedure, what is involved, what steps to take, how safe it is, etc. Understanding more about them made them more prepared and comfortable with the procedure psychologically. The second type of hows helping informants was strategies coping with non-medical issues of a health situation. These strategies helped informants to cope with depression and stress brought by illness, to cope with how to live with a chronic disease as diabetes, and to deal with the impact of illness on family relationship and change of feelings. Finally, sources provided informants some examples that they could emulate in their own situations. For instance, informants tried out a specific diet plan worked out to the details of a whole week or followed recipes from TV program or cook books to help them lose weight.

Got Control of Situation

Faced with a health problem, informants wanted to get a good handle of it with the hope of a quick resolution. Sources helped them to keep control in different aspects. To get out of the cognitive confusion caused by lack of medical knowledge to understand a medical condition, references books gave them definitions and explanations of difficult or unfamiliar medical terminologies. Through active thinking, reflecting and reasoning, informants tried to keep track of what has been done and what would be the next step as well as to keep things in order such as scheduling appointment and keeping them on time.
A good part of getting control of a health situation was represented by whether and how well the condition got diagnosed and treated. When a doctor prescribed a medicine that worked very well for a patient’s symptoms or performed the surgical procedure, such as an ear tube, required to treat the problem, informants felt they took control of the situation, helping them move forward to the recovery goal.

It is not unusual for people to get through an emotional roller coaster in a health situation. Rushed with alternative high and low emotion was felt by some informants to be an impediment for treatment and recovery. Therefore, getting their feelings out and keeping calm would help to maintain control of the situation emotionally. Web blog seemed a particularly suitable venue for informants to achieve this goal. As one informant said that keeping an online journal was a good and safe way of venting her feelings and keep them at the moment in order. She could also come back later to feel hopeful by reading them again when she feels “everything is down in the dumps again” (informant #361, female undergraduate student).

**Prevent Problems in the Future**

As informants searched for information to deal with the current situation, no matter how the situation turned out, successfully or not, a common feeling was that what they have learned would benefit them a lot in the future when a similar situation comes up. Relying on the valuable experience and lessons taken away from the situation, they would take certain actions now to prevent same problems from arising in the future, such as to be more proactive with health issues and start to take active initiatives now rather than later, or they learned what to do to take control of a similar situation if it is not preventable. Along the same line, some informants felt that their experience could
transfer to other life situations by applying useful guidelines or strategies accumulated from the current situation, such as adopting an optimistic attitude in face of a problem or keeping fighting to the end until the problem is solved.

**Things Got Easier**

On their journey of dealing with a health problem, informants also got help from sources that makes the process easier, and in different ways. Except for a common acknowledgment that Internet as a search tool helped them to speed up the information-seeking process by taking much less time, all sources that made things easier, quicker, and more convenient and less work were people informants know personally. Family members were the ones that picked up the chores at home, such as working around the house, taking care of the kids, making meals and running errands. To help them with school or work duties, colleagues picked up their slack or substituted teaching for them; classmates or friends shared class notes they missed or offered to cooperate on class projects; professors granted student informants permission to be absent from class and gave them flexibility with scheduling exams. All support, concrete even though not directly working to diagnosis and treatment, helped to reduce informants’ study/work load and allowed them to temporarily concentrate on their health problems without worrying too much about other responsibilities due.

**Got Emotional/Spiritual Support**

Informants in the study received an outpouring of social support from all kinds of sources. Not surprisingly, interpersonal sources, especially family members and close friends, served as the major source of emotional support. Occasionally, reading others’ stories in non-fiction books or on blogs also gave them the comforting feeling needed. In
those tedious situations, family members offered a safe shoulder to cry on, listened to informants’ concerns and comforted them with love and care. They were always there with them through the whole process, from doctor appointment, treatment sessions, to hospital stays. Friends and colleagues showed their understanding of the difficulties that informants had in doing certain things due to the situation and were more acceptable and patient with it.

In terms of spiritual support, friends and people at church prayed with and for informants, giving them strength and faith in facing the challenge of diseases. Pastors were consulted to provide professional spiritual guidance. The support of spirituality seemed particularly useful and cherished by informants struggling with terminal illness. For an informant suffering from terminal cancer, the pastor’s consolation got her “prepared for death as a reality in my world”, offered “mental and spiritual comfort to prepare for the beyond” and “gave great calmness to a tedious situation like this” (informant #066, female faculty).

Felt Human Connection

Almost all informants at some point got some input from other people’s experience with same or similar health situations. Either through personal interaction with others or reading about others’ stories from newspapers or online blogs, these illness experience brought them a great feeling of connectedness other than sharing coping strategies and passing on advice on treatment. In such a special circle, they bounced ideas off of and gave encouragement to each other. A fellow human being experiencing the same thing somewhere gave informants someone to identify with and not felt alone in facing their problems. That there were people in the same boat with you and traveling on
the same journey as you gave them the strength needed to face the harsh reality now and keep hopeful of the outcome in the future. Through some government agency websites, informants got in touch with various social support groups offering helps and assistance to people with certain illness. That they were not forgotten and there were people to help them through made them feel like part of a supportive community and renewed their faith and belief in humanity.

*Got Relief/Relaxation*

Going through a health situation was often a stressful and highly anxious experience for informants. They felt that the emotional support from family, friends and others often comforted them and calmed them down, though they did not say directly their company or comforting actually got them relaxed, possibly due to the fact that a person can’t truly relax until the health problem gets fixed totally. Among all the informants, two of them directly mentioned they got some relaxation during the process. One read a fiction book that helped take his mind off the worry for his cancer-struck grandmother whereas the other, deeply worried about the possibility of a cancer diagnosis for a lump in her nose, felt totally relieved when the doctor told her it was nothing to worry about at all.
<table>
<thead>
<tr>
<th>Categories of information helps</th>
<th>Descriptions</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Got connected to source/information</td>
<td>Informants reported source input as helping them to connect to other sources or information, such as a specialist or a phone number.</td>
<td>* The Internet took me to the WebMD site I wanted.</td>
</tr>
<tr>
<td>Got general picture/understanding</td>
<td>Informants reported source input as helping them to get a general picture or understanding of a health problem, such as an overview or background.</td>
<td>* I mean the reference books gave us general views on thyroids.</td>
</tr>
<tr>
<td>Got motivated/started</td>
<td>Informants reported source input as helping them to get motivated and started in a situation, such as offering an entry point.</td>
<td>* It actually kind of started my chain of events to all of research.</td>
</tr>
<tr>
<td>Got helps to make decisions</td>
<td>Informants reported source input as helping them to make decisions regarding diagnosis, treatment and care issues.</td>
<td>* I thought about it a lot and tried to make well-informed decisions.</td>
</tr>
<tr>
<td>Got directions to follow</td>
<td>Informants reported source input as helping them to get directions to do specific things to solve a problem.</td>
<td>* One woman at the public school who gave me a lot of direction and advice.</td>
</tr>
<tr>
<td>Got hows (procedures/strategies/examples)</td>
<td>Informants reported source input as helping them to know how to solve a problem, such as strategies or examples.</td>
<td>* It helped me to figure out how to walk on crutches.</td>
</tr>
<tr>
<td>Got control of situation</td>
<td>Informants reported source input as helping them to get control of a situation, such as clearing up confusions or maintaining emotional control.</td>
<td>* The reference books cleared up the difficult medical terminology for me.</td>
</tr>
<tr>
<td>Prevent problem in the future</td>
<td>Informants reported source input as helping them to avoid or prevent similar problems in the future.</td>
<td>* I know exactly what to do to prevent it from happening again.</td>
</tr>
<tr>
<td>Things got easier</td>
<td>Informants reported source input as helping to make things easier, quicker, more convenient or less work for them.</td>
<td>* They helped by picking up slack and not putting unreasonable demands on me.</td>
</tr>
<tr>
<td>Got emotional/spiritual support</td>
<td>Informants reported source input as giving them emotional/spiritual support, such as comfort, sympathy or prayer.</td>
<td>* My friends at the church prayed for us.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* They listened and comforted me a lot.</td>
</tr>
<tr>
<td>Felt human connection</td>
<td>Informants reported source input as helping them to feel connected with others in similar situations.</td>
<td>* At least I know there are people in the same boat.</td>
</tr>
<tr>
<td>Got relief/relaxation</td>
<td>Informants reported source input as helping them to get relief or relaxation, such as reducing their stress level.</td>
<td>* It was more or less a place for me to vent my frustration to the world.</td>
</tr>
</tbody>
</table>

Table 4.7: Sub-categories of information helps identified by inductive analysis of interviews
**Information Hindrances**

From the previous analysis, we see that the input informants got from various sources helped them to satisfy the needs they face in a health situation. While people might assume that information was supposed to help and it was always good to have more information than less, the quantity and quality of input also brought unexpected negative impacts to informants. These input either compromised their ability to make judgments and decisions or led them into negative emotions that eventually hampered the process of their recovery from illness. From informants’ interviews, the input was found to hinder only a small number of informants in three different ways.

*Exhaustion Due to Information Overload*

In general, informants wanted as much as information possible. There was a tendency to feel that there was always something out there that they did not yet know and missing out on that piece of information made some of them feel wanting and uncertain. However, given the highly unpredictable and uncertain nature of some health problems, a number of informants felt that they would never get a complete answer to their questions and get all they needed. Sometimes more does not mean good. In very rare cases, informants complained about the overload of information and felt that the sheer amount of information flowing to them in a short period of time overwhelmed them to the extent that they felt physically and emotionally exhausted by them. One informant was seeking information on certain drugs prescribed to one of her relatives. Through libraries and Internet search, what she found was there was too much information available that she felt it extremely difficult to sift through and pick the best information that helps the most.
Processing a vast amount of information sometimes even became “a detriment and an overload” that a person could not handle physically, as described by the informant who was looking for information on the drugs used in her cancer treatment,

“I used the resources to gather the information regarding my drugs. The information was too vivid and vast. I wanted to feel reassured upon reading the information that my physical body would be able to withstand what it was going to have to go through. What I ended up finding was that my mental capacities couldn’t handle what my physical body was going to have to go through. So, if I didn’t know it I was better off than knowing what all my options were and worrying myself to death about what might happen.” (Informant #066, female faculty)

*Excessive Worries Due to Negative Input*

When facing a health problem of their own or of others, informants naturally wanted to find out all the possible alternatives to fix the problem to choose the best possible option. To help them make an informed and well-reasoned decision, they preferred a balanced and unbiased view on the pros and cons of these alternatives so that once they made the final decision and went on with it they would feel a certain level of predictability for the results. However, when senses told them to open their minds to negative input and points of views, they might not be prepared for the impact these negative input would have on their fragile sensibility. For an undergraduate student, waiting for two months to see a doctor who gave her all those negative information on her possibility of dying from pre-cancerous cells put her right into excessive worry and feeling of hopelessness. Likewise, knowing possible side effects and dangers of drugs or procedures, instead of providing a certain level of preparedness, made a few informants more anxious and dwell on the “what ifs” and not focus on the positive elements of the treatment. This dampened their hope for and confidence in a better result.
Confusion Due to Conflicting Information

Informants on average used six sources and these sources varied in terms of accuracy, credibility and trustworthiness, especially when the majority of them turned to information on Internet websites and personal web pages that could be created and updated by anyone. Using different source input made it likely for them to come across information inconsistent or even contradictory; this was exactly what happened to some informants. When it was difficult for them to evaluate the truth of the conflicting input, they were left confused and frustrated. The contradiction might make it harder to make a quick judgment, but eventually informants could make their decisions after integrating input from different sources to make their final decision. When informant #268 was researching a very new weight loss surgery, he got “so much information out there that is biased based on one person’s point of view”. There were people strongly for and against the procedure on both sides and the voluminous and contradictory information “prevented me from making that judgment initially”; but when reflecting back, he felt that “these barriers actually turned out just to be differing point of view that I was able to put into context” for his judgment (Informant #268, male graduate student).
<table>
<thead>
<tr>
<th>Categories of information hindrances</th>
<th>Descriptions</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaustion due to information overload</td>
<td>Informant felt overwhelmed cognitively, physically or emotionally by too much information</td>
<td>* The information was too vivid and vast... What I ended up finding was that my mental capacities couldn’t handle what my physical body was going to have to go through.</td>
</tr>
<tr>
<td>Excessive worry due to negative input</td>
<td>Informant expressed anxiety or worry over negative input from sources</td>
<td>* The negative opinion gave me excessive worry and made me dwell too much on the “what ifs”.</td>
</tr>
<tr>
<td>Confusion due to conflicting input</td>
<td>Informants felt confused and frustrated by inconsistent and contradictory input</td>
<td>* There were people strongly for and against the procedure on both sides. It just prevented me from making that judgment initially.</td>
</tr>
</tbody>
</table>

Table 4.8: Sub-categories of information hindrances identified by inductive analysis of interviews.

_Situational Learnings_

After identifying information needs in a health situation, informants consulted with various sources they perceived necessary and got different inputs from them. These inputs enabled informants to make new senses of the situation in which they got stuck by various gaps, confusions or problems elaborated as their information needs. For informants, the process of sense making is the process of bridging the gap or satisfying their needs in a situation. The senses newly constructed are not the source information per se; they are what informants constructed through their experience with the help of the source information. When reflecting back on their experience of the whole situation, informants felt they came out with certain learning or lessons. These situational learnings were in various forms; they could be new knowledge, ideas, emotions, understandings, skills, or strategies. These ideas, emotions, strategies and so on might not directly answer
the questions that informants had in a situation, as the way individual sources did; instead, they were elaborated as useful or enlightening learnings that they took away from the information seeking and use experience as a whole as they walked through a problematic health situation.

*Gained Knowledge on Diseases/Treatment*

As shown by previous analysis, most informants who suffered from a specific disease had little medical knowledge on it. For them, going through an illness experience gave them a special occasion to gain new medical knowledge on the disease. Through consulting with sources, they became more informed and gained more understanding of diseases, especially their symptoms, characteristics and treatment. A special attention was given to the importance of the newly acquired knowledge when an informant was dealing with a disease totally new to him/her or when the disease was quite unusual in nature or rare in occurrence. Taking the example of informant #118, when he was notified by his daughter’s teachers at school that she might have a learning problem that he had never heard of, he consulted both health professionals and searched on the Internet to find out more about the condition. Coming out of this situation, he gained some knowledge about a topic and an uncommon condition that he was not even aware of existing before, something called “sensory integration.”

Other informants got more knowledge on the treatment of a disease through their experience. A graduate student suffered from depression due to high pressure of graduate school. With no previous experience of taking the anti-depressant Zoloft, she had “a fear of what this drug could do to you, and also the stigma of being on them.” (informant #239, female graduate student) After talking with people who used it before and her own
trial, she had a personal understanding of how the drug would work on her mood and the experience got rid of her objection to using the drug in the future.

*Gained Knowledge on Self Care/Care Giving*

It is common knowledge that good patient care plays an important part in a quick and satisfactory recovery in an illness situation except for first-class medical care at the hospital. In this dissertation, as informants or their loved ones finished the acute treatment stage and entered the recovery or rehab process, how to maintain good self care or provide care to others became a prominent issue. Patient care covers a wide arrange of issues, such as how to take medicines, how to monitor behavior, and so on, but a topic that informants seemed to give special attention to was that about diet, possibly because other care issues seemed rather routine and thus did not warrant their mentioning. When informants faced situations of different natures, the need for diet might vary accordingly. A few informants gained different knowledge on this topic in their situations. For an informant wanting to lose weight, he consulted sources to “learn a lot about nutrition and life style choices,” (informant #268, male graduate student), but for an informant who took care of his cancer-struck wife, he learned the extreme importance of food in her case and the limited number of food options she could eat. For another informant who was on a low-carb diet, what she gained was knowledge about specific foods that contain low carb.

*Understood the Working of a System*

To tackle the various problems that they were confronted with, informants got involved or interacted with certain agencies, organizations or institutions. Often a good knowledge of how a system works, such as its rules, regulations or procedures, was
needed for an informant to negotiate with or maneuver a system more efficiently in order to solve the problem speedily. Other times, a better understanding of a system was especially critical when an informant’s problem was directly resulted from a lack of understanding of how such a system functions. Through the information seeking experience, some informants got a better knowledge of a system as an important element in solving their problems. Problems about medical coverage or insurance faced by a few informants forced them to negotiate with insurance companies, as in the case of informant #094 who was challenging his insurance company for a hefty bill from a MRI procedure. Through back and forth interactions, he learned how health insurance works and what to do next time “when it comes to choosing facilities and things like that.” (Informant #094, male faculty) For another couple who were struggling to find alternative schooling options for their sons with multiple disorders, discussion with teachers, school administrators, and reading on relevant issues led them to “learn to a great deal the school system and its ins and outs that enabled us to figure out ways to I suppose manipulate the system to our advantage.” (Informant #428, male faculty)

**Changed Beliefs and Attitudes**

Going through an illness is a very emotional and stressful journey for a person. Coupled with the fact that health problems are often uncertain and unpredictable in its development, maintaining a good attitude in face of the adversity could benefit all people involved in a health situation. Informants in this dissertation demonstrated an array of attitudes that they adopted and maintained throughout their ordeals and believed that these beliefs and attitudes not only helped them get emotional control of the current
situation but, as valuable lessons they have learned, would help them to solve any other life problems in the future.

When informant #141 suffered from a regular stomach problem every morning with a certain pattern for a whole quarter, he did not get panic and rushed to a doctor immediately. Instead, he got advice from his father who once had similar problem and searched the Internet for information on causes, symptoms, and treatment of stomach problems. With the help, he used trial and error methods to find out that his physical stomach caused his psychological stress in the classroom, and eventually cleared up his anxiety after curing his stomach. This experience strengthened his belief that “self-help can be very powerful” and confirmed that “you can rely on yourself sometimes and you don’t have to go to a professional to get something fixed.” (Informant #141, male undergraduate student)

In a situation where a disease returned for the second time and created extra burden and stress to informant #175 who was already busy with her school work, she chose to be persistent and stick through the tough situation of juggling school and illness at the same time. Her persistent attitude paid off finally. Now almost at the end of her journey, she valued the importance of a persistent attitude in time of harshness as

“It helps me to not give up, but it makes it special, everyday is special, the classes I take instead of just being classes are important lessons, and I try to get more out of things.” (Informant #175, female undergraduate student)

In the case of a life-threatening situation when a person’s life was on the line, two informants talked about the usefulness of maintaining a faith in God or a supernatural being that helped them get through the experience with calmness and strength. An
informant’s father almost died from a heart attack, he described the unpredictability of the situation and how his faith helped him get through it in these words,

“I guess I would say that we have our routines and our schedules and I think that you can never prepare for when something like a family emergency happens you can’t prepare for it, but I think that just knowing that I think that ultimately God is in control and we don’t have control over everything even though we try to. And I think that life happens; you just have to be strong, and you have to be available for when life happens… My own personal faith helps me get through the situation, my faith in god…” (Informant #298, female graduate student)

Learned Problem Solving/Preventing Strategies

A good attitude did help informants to face difficulties calmly and courageously, but only a good attitude was not enough. Through their experiences of battling with different health situations, informants also learnt strategies to deal with different problems. The strategies could be as general as an overall guideline to do things in any situation and as specific as detailed things to do step by step to deal with a particular problem. For example, some informants learned how to interact with people involved in the situation while others reflected on the specific things that need to be done to avoid similar situation in the future. Informant #037 was dealing with a thorny situation in which her sister got partially paralyzed from a surgery. To get to the true cause of this “accident”, she talked to multiple parties involved in the surgery to get the full picture from all sides. Through the time-consuming and unhappy interaction with doctors who in the informant’s eyes tried to dodge responsibility for their action by double-talking, she became less trusting of doctors. The current experience also taught her the ways to deal with doctors in any occasion thereafter, which could be summarized as to be assertive, to
keep a written records of doctors’ answers and to clarify everything they say, so that it would be hard for doctors to deny things and evade responsibility.

As most informants either suffered from an illness themselves or witnessed other people suffer, they all in certain degree realized the importance of preventing a similar problem from happening again. Some informants specifically pointed out the strategies to avoid problems as their most important learning from the situation. Take the example of informant #260 who got involved in a car accident that injured the friend riding with him. The friend was taken to a hospital and his car got totaled too. The negative consequences got him thinking seriously about the importance of safe driving. What he also got out of the experience was how to drive safely in specific situations. He said he would always “look around and check what other people are up to” (Informant #260, male graduate student) and when somebody else is in the car he would be “extra careful” to drive slowly and under the speed limit.

Learned Specific Skills/Capabilities

Besides learning strategies to deal with problems, some informants were able to acquire certain skills or capabilities in their information seeking process. These skills became their valuable assets that could be applied to similar situations in the future. Information searching skill was mentioned by some informants who chose to use mainly electronic than interpersonal sources to search for information on diseases and medicines. One informant, after comparing and contrasting information from different sources, learned about how to search for health information online and practiced her skills to evaluate sources to select the trustworthy ones. Another informant, using only Internet to read about the medicine prescribed to him, acquired the skills to look up and research
medicine online in terms of what websites to use and where to find free medicines if possible. Sometimes, an informant got out of a not very appealing situation learning something that he/she could never had imagined before. For informant #350, suffering from all the inconvenience in daily life resulting from a leg fracture was definitely not something she had wished for, but unexpectedly, she learned and became really good at walking with crutches, which built up her upper body muscle a lot and helped to beat her brother at arm wrestling, a very happy and cool feeling for her.

Contemplated the Meaning of Life

For informants in this dissertation, especially those who were struggling through a severe illness or were grieving for losses, the close contact with death or the possibility of death often sparked their contemplation on the nature and meaning of life itself. The physical pain and the lurking danger of death gave them a first-hand feeling of the frailty of human body and the impermanence of life. When life happened so fast and so unexpectedly at them, the unpredictability and uncertainty of life and death made them take a fresh look of their current life. Things that were taken for granted before now became so precious and special; a mundane and uneventful life now became something to cherish for. The agonizing experience often gave them a different perspective on life and helped them to keep a faith in life as well as maintain a positive outlook on life.

Informant #407 had a miscarriage. The pregnancy was not planned, but she went on to embrace the unexpected happiness. Then came the unexpected loss. Dealing with the pain of loss made her rethink about her life this way,

“It just gave me a different perspective. It also, the other thing I think it made us realize is we’re definitely also very happy and grateful for what we do have because we actually had trouble having the one child that we
have. It just made me more grateful for what I have, but also open to the possibility to, you know, having another child.” (Informant #407, female faculty)

In a different case, informant #056 was accompanying his wife to go through a surgery that could help her severe back pain but at the same time had a chance of paralyzing her. Witnessing his wife’s situation getting worse and going through various treatments in failure, he could not helping voicing the following reflection that,

“Life is really short, and every moment that Julie (his wife) and I have our health, we need to try to enjoy those days. And really enjoy them, not just let them go by. Not really cognizant that it’s a blessing to have her in my life and have her healthy.”

As a result, the experience gave him a new outlook on life and a refreshed view of happiness, as described in his own words,

“It’s made me see that the happiness really is a choice, it’s not just the conditions that are presented to you or pressed upon you. There are going to be a few problems, but you kind of have to choose your life. You need to look at the beauty around you…” (Informant #056, male faculty)

Understood More about Self

In the literature on illness experience, a subset of studies focused on how illness affects how patients look at themselves in terms of how their sense of self and identity change as they walk through the illness experience. In this dissertation, given that the focus is on informants’ information seeking experience, interview questions focused more on their major questions and source use than digging into their sense of self, thus it is understandable that few informants talked about how illness changed their self and identity. In fact, only two informants explicitly talked about how the illness experience was also one of self-discovery and self-understanding. Living with two sons with
dyslexia, ADD and Asperger’s Syndrome made informant #428 learn a great deal about himself as a parent. Learning more about and be more accepting of their peculiarities also shed some light on some of his own peculiarities he shared with them.

For another informant dealing with depression and school at the same time, the experience made her understand more about her self, especially her strength and courage that she was not aware of before. This also gave her confidence in her ability to face other challenges in life in the way that,

“It helps me just to know my boundaries, and to know when I can push farther than I really think that I can go. Because, I know that I have so much courage, I know that I can do things to a greater extent, or if something makes me afraid, I have more… I’m more capable of going after it, and trying to conquer it, because I know what I’ve been through.”

(Informant #361, female undergraduate student)

Changed Perceptions of People

Analysis on source use in the previous section showed that the sources that informants consulted with the most were various kinds of interpersonal sources, including family and friends, students and colleagues, and health and other professionals. Interacting with these people not only gave informants the inputs they needed, but changed their perceptions of relationship among people as well. Some informants got support from the people whom they never expected to get help from, giving them confidence in the connectedness among human beings. As the story of a cancer patient showed, she was amazed by all the support out there provided by people around her and even strangers met on the street. The outpouring caring and support gave her more courage to beat against the seemingly insurmountable odds. For other informants, the experience changed their perceptions of other people, which subsequently helped them to
adopt a new attitude toward them. Informant #047 was suspicious about his son’s various physical symptoms and thought he might be making them up. After being diagnosed with severe allergies and treated successfully, he learned to trust his son and what he said.

When informant #298’s father suffered a heart attack, she woke up from her obsession with her own study and success and changed her focus to the well being of family instead. She learned to value her family and put family as the first priority in her life.

Perceptions of health professionals also changed for some informants with the pattern that the majority of them lost their trust to a certain degree in these professionals after their unsatisfying interaction with them. A misdiagnosis on an informant’s tooth problem made him describe dentists as “quacks” and “lousy”, not better than anyone else in terms of trustworthiness. Similarly, being forced to take ineffective medicines and go through unnecessary procedures by a family physician without pinpointing his real problem led another informant to seriously suspect about the doctor’s medical expertise and ability.
<table>
<thead>
<tr>
<th>Categories of situational learnings</th>
<th>Descriptions</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gained knowledge on disease/treatment</td>
<td>Informants got knowledge on a disease or medical condition, such as its symptoms, characteristics and treatment.</td>
<td>* I gained some new knowledge about a medical condition I wasn’t even aware of existed.</td>
</tr>
<tr>
<td>Gained knowledge on self care/care giving</td>
<td>Informants got knowledge on taking care of self or others, such as home care, taking medicine and diet.</td>
<td>* I mean, yeah, I think I learned a lot about nutrition and life style choices and what it takes.</td>
</tr>
<tr>
<td>Understood the working of a system</td>
<td>Informants understood how an agency, system or institution works, in terms of rules, regulations and procedures.</td>
<td>* We’ve learned to a very great deal the school system and its ins and outs. It’s enabled us to figure out ways to I suppose manipulate the system to our advantage.</td>
</tr>
<tr>
<td>Changed beliefs/attitudes</td>
<td>Informants strengthened or changed beliefs or attitudes on health and how to solve other life problems.</td>
<td>* Self-help can be very powerful. You can rely on yourself sometimes and you don’t always have to go to a professional to get something fixed.</td>
</tr>
<tr>
<td>Learned problem solving/preventing strategies</td>
<td>Informants learned methods and strategies to solve or prevent certain problems, health-related or not.</td>
<td>* You have to ask the questions and write them down and make sure you’re clear on what they’re saying.</td>
</tr>
<tr>
<td>Learned specific skills/capabilities</td>
<td>Informants learned specific skills from the health situation that can be applied to other life situations, such as information searching skills.</td>
<td>* I got really good at walking with crutches. So that’s, I guess that is something special, but I don’t know how useful that is.</td>
</tr>
<tr>
<td>Contemplated the meaning of life</td>
<td>Informants contemplated and reflected on the nature, meaning and value of life through the experience with a health situation.</td>
<td>* Life is really short, and every moment that Julie and I have our health, we need to try to enjoy those days.</td>
</tr>
<tr>
<td>Understood more about self</td>
<td>Informants came to know more about self, such as identity, personality, abilities or limitations.</td>
<td>* It helps me just to know my boundaries, and to know when I can push farther than I really think that I can go.</td>
</tr>
<tr>
<td>Changed perceptions of people</td>
<td>Informants changed their perceptions of and attitudes toward people, such as their trustworthiness, expertise or personal relationship among them.</td>
<td>* Dentists are quacks. Lousy. They give bad information and you can’t really trust them. Just they’re like anybody else so that’s kind of a big thing.</td>
</tr>
</tbody>
</table>

Table 4.9: Sub-categories of situational learnings identified by inductive analysis of interviews
Results of Dervin's Sense-Making Methodology Guided Situational Contingency Analysis

In review, Dervin's Sense-Making Methodology guided situational contingency analysis takes a situational approach to look at information seeking and use. Rather than looking at average informants behaviors by asking them what they usually do or how often they do something across time-space, Sense-Making has always emphasized the importance of variability of informant behaviors as informants move across time-space in changing situations. Defined as a given life experience of any duration which has “reality” for a given actor, situation is considered as a better predictor of information behavior in many contexts than traditional across-time space predictors (e.g. demography and personality) that assume consistent informant behaviors even as they move across time-space (Dervin, 2007). In Sense-Making studies, the sense-making moment is seen at the intersection of all aspects of the situation-gap-bridge-outcome triangle. Thus, a key focus of situational contingency analysis is to look at the contingencies to find out how different factors account for different aspects of information behavior. A typical situational contingency analysis of information seeking and use studies combines both qualitative and quantitative approaches. This dissertation uses a qualitative approach to situational contingency analysis. Instead of doing statistical analysis to parcel out the variances accounted for by different predictors in various information seeking and use measures, the analysis tried to identify themes or patterns of informants’ information seeking and use displayed in contingency tables by pitting academic rank as an across
time-space factor and focus of situation as a time-space specific factor to see how they related to information seeking and use activities, working separately or together.

*Academic Rank and Information Seeking and Use Behaviors*

The following table (Table 4.10) is an overview of the contingent relationship between academic rank and informants’ health information seeking and use behaviors.
<table>
<thead>
<tr>
<th>Academic rank</th>
<th>Information needs</th>
<th>Helps sought</th>
<th>Sources used</th>
<th>Source combination</th>
<th>Helps from sources</th>
<th>Situational learnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty (n = 38)</td>
<td>*treatment options</td>
<td>*get control</td>
<td>*self, interpersonal and Internet resources</td>
<td></td>
<td>*got connected</td>
<td>*problem solving/prevention strategies</td>
</tr>
<tr>
<td></td>
<td>*cause of problem</td>
<td>*get resolution</td>
<td>*self, interpersonal, library and Internet resources</td>
<td></td>
<td>*got support</td>
<td>*knowledge on disease/treatment</td>
</tr>
<tr>
<td></td>
<td>*diagnosis of disease</td>
<td>*make decision</td>
<td>*self, interpersonal, library, mass media, organizational and Internet resources</td>
<td></td>
<td>*made decision</td>
<td>*changed perception of people</td>
</tr>
<tr>
<td></td>
<td>*recovery</td>
<td>*get direction</td>
<td>*self and interpersonal, library resources</td>
<td></td>
<td>*got control</td>
<td>*changed belief/attitude</td>
</tr>
<tr>
<td></td>
<td>*working of treatment</td>
<td>*things get easier</td>
<td>*self and interpersonal, mass media, org and Internet resources</td>
<td></td>
<td>*got hows</td>
<td>*skills/capabilities</td>
</tr>
</tbody>
</table>

| Graduate students (n = 21) | *treatment options                                     | *get control                  | *self, interpersonal sources       |                                                                              | *got connected    | *problem solving/prevention strategies |
|                           | *cause of problem                                      | *get support                  | *self, interpersonal and Internet resources |                                                                              | *got support       | *knowledge on disease/treatment |
|                           | *diagnosis of disease                                  | *get connected                 | *self, interpersonal and library and Internet resources |                                                                              | *made decision     | *changed perception of people |
|                           | *recovery                                              | *get resolution                | *self, interpersonal, library, org and Internet resources |                                                                              | *got control       | *changed belief/attitude |
|                           | *working of treatment                                  | *make decision                 | *self and interpersonal sources    |                                                                              | *got hows          | *skills/capabilities     |

| Undergraduate students (n = 22) | *treatment options                                     | *get control                  | *self, interpersonal and Internet resources |                                                                              | *got connected    | *problem solving/prevention strategies |
|                                 | *cause of problem                                      | *get support                  | *self and interpersonal sources       |                                                                              | *got support       | *knowledge on disease/treatment |
|                                 | *diagnosis of disease                                  | *things get easier             | *self, interpersonal and Internet resources |                                                                              | *made decision     | *changed perception of people |
|                                 | *recovery                                              | *get hows                     | *self, interpersonal and Internet resources |                                                                              | *got control       | *changed belief/attitude |
|                                 | *working of treatment                                  | *get resolution                | *self and interpersonal sources      |                                                                              | *got hows          | *skills/capabilities     |

Table 4.10: An overview of the contingent relationship between academic rank and patterns of health information seeking and use behaviors.
Academic Rank and Information Needs

In general, academic rank did not relate to information needs in specific ways. As shown on Figure 4.10, there was no difference in terms of pattern of information needs across academic rank. Informants reported more disease-related needs. In fact, regardless of academic rank, faculty, graduate and undergraduate students reported the same three most asked questions on the cause of their medical problem, the correct diagnosis and possible treatment options to solve the problem. After these, informants inquired about other disease-related needs, such as how a specific treatment, a medical procedure or a medication, works and issues concerning chance of recovery.

Among the illness-related needs listed on Table 4.11, informants across academic rank were concerned about the same issues too, especially coping strategies and the care needs of others if they were involved in a health situation faced by their family and loved ones. Following these, fewer informants across all board wanted to know about healthy behaviors, diet or exercise, or hoped to get access to certain resources, such as time and money.
<table>
<thead>
<tr>
<th>Academic rank</th>
<th>Faculty (n = 38)</th>
<th>Graduate students (n = 21)</th>
<th>Undergraduate students (n = 22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment options</td>
<td>14 (36.8%)</td>
<td>8 (38%)</td>
<td>8 (36.4%)</td>
</tr>
<tr>
<td>Cause of problem</td>
<td>11 (28.9%)</td>
<td>7 (33.3%)</td>
<td>7 (31.8%)</td>
</tr>
<tr>
<td>Diagnosis of disease</td>
<td>9 (23.7%)</td>
<td>6 (27.2%)</td>
<td>6 (27.3%)</td>
</tr>
<tr>
<td>Recovery</td>
<td>8 (21.1%)</td>
<td>5 (23.8%)</td>
<td>5 (22.7%)</td>
</tr>
<tr>
<td>Working of treatment</td>
<td>6 (15.8%)</td>
<td>4 (19%)</td>
<td>4 (18.2%)</td>
</tr>
<tr>
<td>Patient care needs</td>
<td>3 (7.9%)</td>
<td>2 (9.5%)</td>
<td>3 (13.6%)</td>
</tr>
<tr>
<td>Impact on life/family</td>
<td>3 (7.9%)</td>
<td>2 (9.5%)</td>
<td>2 (9.1%)</td>
</tr>
<tr>
<td>Coping skills/strategies</td>
<td>2 (5.3%)</td>
<td>3 (14.3%)</td>
<td>2 (9.1%)</td>
</tr>
<tr>
<td>Healthy behaviors</td>
<td>2 (5.3%)</td>
<td>2 (9.5%)</td>
<td>1 (4.5%)</td>
</tr>
<tr>
<td>Psychological/emotional</td>
<td>2 (5.3%)</td>
<td>1 (4.8%)</td>
<td>1 (4.5%)</td>
</tr>
<tr>
<td>impact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health insurance concerns</td>
<td>1 (2.6%)</td>
<td>2 (9.5%)</td>
<td>1 (4.5%)</td>
</tr>
<tr>
<td>Access to sources/information</td>
<td>1 (2.6%)</td>
<td>1 (4.8%)</td>
<td>1 (4.5%)</td>
</tr>
</tbody>
</table>

Table 4.11: A summary of information needs by informants across academic rank

**Academic Rank and Helps Sought**

The picture of helps sought across academic rank seemed to change from the analysis on information needs. Informants now differed in the most frequently reported helps sought in the situation. While in each group, the most sought help by informants was to get control of the situation, things changed for the next two most sought helps. For
faculty members, they needed help to get a resolution of the problem and make decisions, following the help needed to get control; for graduate students, they needed emotional or concrete support and help to get connected to sources or information; for undergraduate students, they preferred to get help to make things easier for them and know how to resolve the problem. In detailed comparison, more faculty informants wanted to get a resolution, followed by undergraduate and graduate students, more of them also reported needing help to make a decision, followed by graduate and undergraduate students. For graduate students, more needed support than faculty and undergraduate students, and at the same time they needed to get connected to other sources or information more than undergraduate followed by faculty. In addition, more undergraduate students preferred help to make things easier than faculty and graduate students, while they wanted to know how to get a resolution more than graduate students followed by faculty informants did.

As far as the least sought helps, informants across academic rank shared the similar patterns too. They all reported needing little help to get relaxation, get started, or prevent future problems. Comparing the three groups closely, it was revealed that no single faculty or undergraduate student mentioned that they needed help to get relaxation and get started, while there was one graduate student reporting for each help category.
### Table 4.12: A summary of helps sought by informants across academic rank

<table>
<thead>
<tr>
<th>Helps sought</th>
<th>Faculty (n = 38)</th>
<th>Graduate students (n = 21)</th>
<th>Undergraduate students (n = 22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get control of situation</td>
<td>12 (31.6%)</td>
<td>8 (38%)</td>
<td>8 (36.4%)</td>
</tr>
<tr>
<td>Get resolution</td>
<td>6 (15.8%)</td>
<td>2 (9.5%)</td>
<td>3 (13.6%)</td>
</tr>
<tr>
<td>Make decision</td>
<td>6 (15.8%)</td>
<td>2 (9.5%)</td>
<td>1 (4.5%)</td>
</tr>
<tr>
<td>Get direction</td>
<td>5 (13.2%)</td>
<td>2 (9.5%)</td>
<td>2 (9.1%)</td>
</tr>
<tr>
<td>Things get easier</td>
<td>5 (13.2%)</td>
<td>2 (9.5%)</td>
<td>5 (22.7%)</td>
</tr>
<tr>
<td>Get hows</td>
<td>3 (7.9%)</td>
<td>2 (9.5%)</td>
<td>5 (22.7%)</td>
</tr>
<tr>
<td>Get emotional/spiritual</td>
<td>3 (7.9%)</td>
<td>3 (14.3%)</td>
<td>2 (9.1%)</td>
</tr>
<tr>
<td>Get connected to source/information</td>
<td>2 (5.3%)</td>
<td>4 (19%)</td>
<td>3 (13.6%)</td>
</tr>
<tr>
<td>Get general picture/understanding</td>
<td>3 (7.9%)</td>
<td>3 (14.3%)</td>
<td>2 (9.1%)</td>
</tr>
<tr>
<td>Prevent problem in the future</td>
<td>1 (2.6%)</td>
<td>1 (4.8%)</td>
<td>1 (4.5%)</td>
</tr>
<tr>
<td>Get human connectedness</td>
<td>0 (0%)</td>
<td>1 (4.8%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Get relief/relaxation</td>
<td>0 (0%)</td>
<td>1 (4.8%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Get motivated/started</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

### Academic Rank and Sources Used

As already summarized in Schatzman’s grounded theory dimensional analysis on source use, across academic rank, informants shared the three most used sources of input, in the order of self, family and friends, and Internet search engine. However, they
differed for the next two most used sources. For faculty informants, health professionals and library resources were used after the top three sources; for graduate students, the order of usage reversed to library resources followed by health professionals; for undergraduate students, however, the next two more used sources were students and classmates and health professionals.

The results showed that different from many previous studies, health professionals no longer stay at the top of list as information source by people in health situations. For all academic status, they came after self, family and friends, and Internet search engine. Comparatively, faculty used health professionals more than students. Further, it is showed that more graduate students used library resources than undergraduate students whereas the latter turned to students and classmates for help than the former.

**Academic Rank and Source Combination**

Looking within academic rank, faculty, graduate and undergraduate students shared a certain source combination pattern but differed in others. For faculty informants, the most common source combination was using self, interpersonal, library and Internet sources, followed by the use of all six categories of sources combined, and the combined use of self, interpersonal and Internet sources. Only four people (10.5%) did not share their source combination with any other informant. For graduate students, an equal number of them selected either the mix of self and interpersonal sources, self, interpersonal and Internet sources, or the mix of self, interpersonal, library plus Internet resources. Six of the graduate students (28.6%) used a unique combination of sources. For undergraduate students, only two patterns emerged, the combination of self,
interpersonal and Internet sources, and the mix of self and interpersonal sources. In addition, eight other undergraduate students (36.3%) demonstrated a unique mix of source use.

Across academic rank, the one source combination common to all faculties, graduate and undergraduate students was self, interpersonal and Internet resources. While faculty and graduate students shared the mix of self, interpersonal, library and Internet resource, graduate and undergraduate students shared the combination of self and interpersonal sources as a pattern.

*Academic Rank and Helps from Sources*

Looking at what helps informants reported getting most from the sources, the top five helps were shared by all faculty, grad and undergrad students. The most frequently reported helps informants got were that they got connected, got support, made decision, got control and got hows. Further comparing across the ranks, more graduate students got connected to sources or information and got control of the situation than faculty and then undergraduate students. In addition, more faculties got support than graduate students followed by undergraduate students, and more of them got help to make decisions than undergraduate followed by graduate students. For other helps got, the three groups displayed a different and complex order in terms of the number of informants reporting getting them.

As for the helps that informants reported getting least from the sources, while no faculty reported that they got resources from the sources used, no graduate student reported getting help to prevent problem in the future, it was undergraduate students who felt that no source helped them to get resource, or prevent problem in the future.
<table>
<thead>
<tr>
<th>Helps from sources</th>
<th>Faculty (n = 38)</th>
<th>Graduate students (n = 21)</th>
<th>Undergraduate students (n = 22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Got connected to source/information</td>
<td>30 (78.9%)</td>
<td>17 (80.9%)</td>
<td>13 (59.1%)</td>
</tr>
<tr>
<td>Got emotional/spiritual support</td>
<td>28 (73.7%)</td>
<td>12 (57.1%)</td>
<td>13 (59.1%)</td>
</tr>
<tr>
<td>Got help to make decision</td>
<td>21 (55.3%)</td>
<td>8 (38%)</td>
<td>9 (40.9%)</td>
</tr>
<tr>
<td>Got control of situation</td>
<td>15 (39.5%)</td>
<td>7 (33.3%)</td>
<td>8 (36.4%)</td>
</tr>
<tr>
<td>Got hows</td>
<td>14 (36.8%)</td>
<td>7 (33.3%)</td>
<td>7 (31.8%)</td>
</tr>
<tr>
<td>Got general picture/understanding</td>
<td>13 (34.2%)</td>
<td>6 (27.2%)</td>
<td>4 (18.2%)</td>
</tr>
<tr>
<td>Got direction</td>
<td>9 (23.7%)</td>
<td>2 (9.5%)</td>
<td>6 (27.3%)</td>
</tr>
<tr>
<td>Got motivated/started</td>
<td>8 (21.1%)</td>
<td>3 (14.3%)</td>
<td>5 (22.7%)</td>
</tr>
<tr>
<td>Things got easier</td>
<td>6 (15.8%)</td>
<td>5 (23.8%)</td>
<td>6 (27.3%)</td>
</tr>
<tr>
<td>Felt human connection</td>
<td>4 (10.5%)</td>
<td>5 (23.8%)</td>
<td>4 (18.2%)</td>
</tr>
<tr>
<td>Got relief/relaxation</td>
<td>1 (2.6%)</td>
<td>1 (4.8%)</td>
<td>3 (13.6%)</td>
</tr>
<tr>
<td>Prevented problem in the future</td>
<td>1 (2.6%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Got resources</td>
<td>0 (0%)</td>
<td>1 (4.8%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

Table 4.13: A summary of helps from sources reported by informants across academic rank
**Academic Rank and Situational Learnings**

Similar to information needs, across all academic rank, there was little difference in terms of what informants learned from the situation. All faculties, graduate and undergraduate informants reported the same top four things they learned while dealing with their health situations. They all reported learning problem solving and prevention strategies, knowledge about disease and treatment, changed conception about people and changed beliefs/attitudes more than other things. Following these, the next learning faculty reported was to understand the working of a system or institution whereas graduate undergraduate students shred the commonality in acquiring specific skills or capabilities coming out of the situation.

Comparing what informants learned the least from the situation, while five faculty members reported that they learned how a specific system or institution worked, only one undergraduate shared the same view and there was no graduate student reporting learning this.
<table>
<thead>
<tr>
<th>Situational learnings</th>
<th>Academic rank</th>
<th>Faculty (n = 34)</th>
<th>Graduate students (n = 19)</th>
<th>Undergraduate students (n = 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learned problem solving/preventing strategies</td>
<td></td>
<td>10 (29.4%)</td>
<td>7 (36.8%)</td>
<td>6 (37.5%)</td>
</tr>
<tr>
<td>Gained knowledge on disease/treatment</td>
<td></td>
<td>9 (26.5%)</td>
<td>6 (31.6%)</td>
<td>6 (37.5%)</td>
</tr>
<tr>
<td>Changed perception of people</td>
<td></td>
<td>7 (20.6%)</td>
<td>3 (15.8%)</td>
<td>4 (25%)</td>
</tr>
<tr>
<td>Changed beliefs/attitudes</td>
<td></td>
<td>6 (17.6%)</td>
<td>3 (15.8%)</td>
<td>3 (18.8%)</td>
</tr>
<tr>
<td>Understood working of an institution</td>
<td></td>
<td>5 (14.7%)</td>
<td>0 (0%)</td>
<td>1 (6.3%)</td>
</tr>
<tr>
<td>Gained knowledge on self care/care giving</td>
<td></td>
<td>3 (8.8%)</td>
<td>1 (5.3%)</td>
<td>1 (6.3%)</td>
</tr>
<tr>
<td>Contemplated meaning of life</td>
<td></td>
<td>3 (8.8%)</td>
<td>1 (5.3%)</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>Understood more about self</td>
<td></td>
<td>3 (8.8%)</td>
<td>1 (5.3%)</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>Learned specific skills/capabilities</td>
<td></td>
<td>1 (2.9%)</td>
<td>2 (10.5%)</td>
<td>3 (18.8%)</td>
</tr>
</tbody>
</table>

Table 4.14: A summary of situational learnings reported by informants across academic rank

**Focus of Situation and Information Seeking and Use Behaviors**

Data analysis identified ten types of health situation with different focuses. As mentioned before, these focuses were obtained through coding considering both the nature of the situation and the stage of disease of an illness experience. The following is a summary table of the ten focuses of situation with its definition and examples from the interview transcripts.
<table>
<thead>
<tr>
<th>Focus of situation</th>
<th>Definitions</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Looking for a diagnosis</td>
<td>A situation in which the informant was seeking the correct diagnosis for a health problem</td>
<td>*The hardest part was that the doctor could not find out what was wrong with me.</td>
</tr>
<tr>
<td>Searching for treatment options</td>
<td>A situation in which the informant was searching for possible treatment options/alternatives to a health problem</td>
<td>*I was searching for information on the Internet about how to treat the condition.</td>
</tr>
<tr>
<td>Understanding working of treatment</td>
<td>A situation in which the informant was trying to understand the details of how a treatment (procedure/medicine) works</td>
<td>*I was seriously considering weight loss surgery.</td>
</tr>
<tr>
<td>Dealing with recovery/rehab</td>
<td>A situation in which the informant was dealing with issues regarding to the recovery/rehabilitation of a patient</td>
<td>*My father was involved in an accident. He was hospitalized for several days and is currently recovering at home.</td>
</tr>
<tr>
<td>Coping with pain/loss</td>
<td>A situation in which the informant was coping with the pain/loss resulting from a health problem</td>
<td>*My father passed away from complications with pancreatic cancer.</td>
</tr>
<tr>
<td>Facing demand of illness on life</td>
<td>A situation in which the informant was coping with the demand of illness on professional/personal life</td>
<td>*My wife has multiple sclerosis which compounds problems with my balancing of home life and career and with the marriage itself.</td>
</tr>
<tr>
<td>Worrying about others’ well being</td>
<td>A situation in which the informant was worrying about a person's health problem but could not be there at the moment.</td>
<td>*I met with an accident and I was worried for my friend as he was taken to the hospital.</td>
</tr>
<tr>
<td>Maintaining health</td>
<td>A situation in which the informant was trying to maintain health by living healthy or getting rid of unhealthy habits</td>
<td>*I had to quit smoking. I was going through withdrawal symptoms really bad.</td>
</tr>
<tr>
<td>Looking for health insurance</td>
<td>A situation in which the informant was looking for a good and affordable health insurance plan</td>
<td>*The most troublesome situation I have faced lately is trying to obtain an individual health insurance polity for my family.</td>
</tr>
<tr>
<td>Solving a medical bill problem</td>
<td>A situation in which the informant was trying to solve a medical bill problem regarding a health problem</td>
<td>*I was left with a hefty medical bill even if I had health insurance.</td>
</tr>
</tbody>
</table>

Table 4.15: Categories inductively obtained from the interview data to describe focus of situation
Among the ten focuses of situation, five of them, looking for diagnosis, searching for treatment options, understanding working of treatment, maintaining health and facing the demand of illness on life, were experienced by all faculties, graduate and undergraduate students. For the rest of situations, while faculty and undergraduate students were involved in situations where they coped with pain/loss or solved a medical bill problem, only graduate and undergraduate students worried about other’s well being and only faculty and graduate students reported looking for health insurance. In addition, the situation of dealing with recovery/rehab was only reported by faculty informants.

After intersecting the focus of situation and six information seeking and use behaviors, we got the following tables (Table 4.16A and 4.16B) that summarized the contingent relationship between the situation and informants’ health information seeking and use behaviors, in terms of what information they needed, what helps they sought, what sources they used, and how the sources helped them and what they learned in a specific type of health situation. The analysis will present a thematic portrait of the focuses of situation one by one, supplemented by a more detailed description of a typical example selected from a group of situations with the same focus.
<table>
<thead>
<tr>
<th>Focus of situation</th>
<th>Information needs</th>
<th>Helps sought</th>
<th>Source used</th>
<th>Source combination</th>
<th>Helps from sources</th>
<th>Situational learnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Looking for a diagnosis (n = 11)</td>
<td>*diagnosis of disease *treatment options *cause of problem</td>
<td>*get control *get connected</td>
<td>*self *Internet search engine *family and friends *health professionals</td>
<td>*self, interpersonal and Internet resources</td>
<td>*got connected *got support *got control *got general understanding</td>
<td>N/A</td>
</tr>
<tr>
<td>Searching for treatment options (n = 13)</td>
<td>*treatment options *diagnosis of disease</td>
<td>*get control *get direction</td>
<td>*family and friends *self *Internet search engine *health professionals</td>
<td>N/A</td>
<td>*got connected *got support *made decision</td>
<td>N/A</td>
</tr>
<tr>
<td>Understanding working of treatment (n = 12)</td>
<td>*working of treatment *treatment options</td>
<td>*make decision *get hows</td>
<td>*Internet search engine *self *family and friends *library resources *organizational *health professionals</td>
<td>N/A</td>
<td>*got connected *made decision *got hows</td>
<td>N/A</td>
</tr>
<tr>
<td>Dealing with recovery/rehab (n = 6)</td>
<td>*chance of recovery *impact of illness</td>
<td>*things get easier *make decision</td>
<td>*self *family and friends *Internet search engine *library resources *organizational</td>
<td>N/A</td>
<td>*got connected *got support *made decision *things got easier</td>
<td>*knowledge on care</td>
</tr>
<tr>
<td>Coping with pain/loss (n = 2)</td>
<td>*cause of problem</td>
<td>*get hows</td>
<td>*self *family and friends *Internet search engine</td>
<td>*self, interpersonal and Internet resources</td>
<td>*got connected *got support *got control</td>
<td>*meaning of life *understand more about self</td>
</tr>
</tbody>
</table>

Table 4.16: A typology of the contingent relationship between focus of situation and patterns of health information seeking and use behaviors
Table 4.16 continued

<table>
<thead>
<tr>
<th>Focus of situation</th>
<th>Information needs</th>
<th>Helps sought</th>
<th>Source used</th>
<th>Source combination</th>
<th>Helps from sources</th>
<th>Situational learnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facing demand of illness on life (n = 17)</td>
<td>*coping strategies</td>
<td>*things get easier</td>
<td>*self</td>
<td>N/A</td>
<td>*got connected</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>*chance of recovery</td>
<td>*get control</td>
<td>*family and friends</td>
<td></td>
<td>*got support</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*students and colleagues</td>
<td></td>
<td>*got control</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*Internet search engine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*health professionals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worrying about others’ well being (n = 8)</td>
<td>*patient care needs</td>
<td>*get control</td>
<td>*self</td>
<td>*self, interpersonal, library and Internet resources</td>
<td>*got support</td>
<td>*problem solving/preventing strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*family and friends</td>
<td></td>
<td>*got connected</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*Internet search engine</td>
<td></td>
<td>*got connected</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*self, interpersonal, library and Internet resources</td>
<td></td>
<td>*got relaxation</td>
<td></td>
</tr>
<tr>
<td>Maintaining health (n = 6)</td>
<td>*healthy behaviors</td>
<td>*get control</td>
<td>*Internet search engine</td>
<td>N/A</td>
<td>*got connected</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*self</td>
<td></td>
<td>*got support</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*students and colleagues</td>
<td></td>
<td>*got connected</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*mass media</td>
<td></td>
<td>*got hows</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*library resources</td>
<td></td>
<td>*felt human connection</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*organizational</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*chat room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Looking for health insurance (n = 3)</td>
<td>*health insurance provider</td>
<td>*get connected</td>
<td>*self</td>
<td>N/A</td>
<td>*got connected</td>
<td>*working of an institution</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*students and colleagues</td>
<td></td>
<td>*got general understanding</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*Internet search engine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*mass media</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solving a medical bill problem (n = 3)</td>
<td>*cause of problem</td>
<td>*get direction</td>
<td>*self</td>
<td>*self and Interpersonal sources</td>
<td>*got direction</td>
<td>*problem solving/preventing strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*other professionals</td>
<td></td>
<td>*got support</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*family and friends</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Focus of situation 1: Looking for a diagnosis (n = 11)

In a health situation, when informants were focusing on looking for a diagnosis for their specific conditions, the number one concern on their minds was to understand what was really wrong with them and found out the correct diagnosis. As a correct diagnosis was only the first step in the right direction, many of them also wanted to know what treatment options were out there in order to select the best possible option that would benefit them the most but have the least side effects. In addition, these informants not only wanted to get a diagnosis, but also knew why the condition or disease happened to them at the first place so that they could try to prevent the same situation from happening in the future. The most important helps sought by these informants were to get control of the condition, in the sense of getting the best treatment in a timely manner, or to get connected to another physician or a specialist if their primary care physicians failed to identify the problem. In terms of source use, they turned to self, family and friends, Internet search engine and health professionals more than other sources. For more than half of them, they either used a mix of self, interpersonal and Internet sources. As for the helps they got from the sources used, most of them reported getting connected to sources/information, getting emotional support, getting control of the situation as well as getting a general understanding of their medical condition, including its symptoms, treatment and other issues. From their experience, informants learned a variety of different things, with gaining new knowledge on a certain medical condition and changed perceptions of doctors as less trustworthy as the two most reported learnings. The following is an example of this situation.
“For about four months, I was having some health problems that were interfering with my ability to do much of anything. The hardest part about this was that the doctor’s could not find out what was wrong with me. I was going to the doctor and/or hospital once a week or every other week for tests, etc. I was sent to specialists and then sent back to my family doctor because the tests would come back negative. I continued to experience health problems throughout this time, and it was troublesome because I did not know why I was experiencing the health problems.”

(Informant #055, female faculty)

Facing a mysterious medical condition, the informants had two big questions: what was wrong with her and what to do about it after the diagnosis. When asked about what help she needed, informants wanted her condition under control by finding a better doctor who could identify her problem. To get input, the informant used seven different sources, including self, family and friends, students, co-workers, doctors, reference books and Internet search engine. While interpersonal sources, such as family and friends, students and co-workers, offered possible diagnoses to her from their own similar experience, which led him to “do research about those specific ailments and try to see if my symptoms matched those at all”, a specialist doctor helped to give her a partial diagnosis. By reading through a medical reference book, she got a general understanding of many debilitating diseases and was happy to rule them out for her case. Finally, Internet search took her to relevant articles or information on WebMD and other websites. Through this experience, the informant changed her perception of family doctors, feeling that “Family doctors are so general they don’t really have specialized knowledge and they are trained simply to put a band aid on the problem and so I think in my mind at least the specialists are the ones that really can do a much more in depth job of treating you.”
**Focus of situation 2: searching for treatment options (n = 13)**

When informants were focusing on searching for treatment options, they cared the most about all possible treatment alternatives out there, followed by finding out the correct diagnosis of their medical condition. Similar to the situation where looking for diagnosis was the focus, informants needed help to get control of the problematic situation. Meanwhile, they needed direction as for what to do to get treatment. To get the help, the sources informants consulted with the most were family and friends, self, Internet search engine and health professionals in this order. Though there was not a single pattern of source combination shared by most informants, they either used a combination of self, interpersonal and Internet sources or the combination of self, interpersonal, library and Internet sources. When talking about the help sources gave them, the most reported helps were getting connected to source/information and getting emotional support. After these, they felt getting help to make decisions to go along with a certain treatment option. Similar to situation #1, informants reported learning a variety of things in the situation, from learning problem solving strategies, changing belief/attitude, to gaining knowledge on self care or care taking for others and contemplating the meaning of life. The following describes an example of this type of situation,

“My arm started aching. It seems to be associated with some work we did around the house. The doctor diagnosed it as a tendon problem injury. It came back four months later. I was concerned whether this was a larger health issue, but the doctor assures me that it is still a tendon problem, and that there’s nothing much to do about it… Given that is returned once my guess is that it’s going to keep returning. I was trying to ask whether to exercise it or something and he indicated that that’s the exact wrong thing to do, you do that for the muscle but not a tendon. I don’t quite know how it regenerates.” (Informant #003, male faculty)
Bothered by an aching arm, this informant wanted to know what the problem was medically and more importantly how to treat the problem. The helps he was seeking was to make the pain go away and to do something to improve and strengthen the arm. He turned to a total of five sources for input, self, family and friends, colleagues, doctor and Internet search engine. While getting emotional support from his wife by talking with her about it, his colleagues showed him the way to exercise the arm from their experience. While the doctor helped by correctly diagnosing the problem, the informant himself searched online too to read about other possibilities for the aching arm. What the informant got out of the situation was to learn how to prevent similar problem from occurring again by “not to put the arm at strain for long periods of time.”

*Focus of situation 3: understanding working of treatment (n = 12)*

After informants got diagnosed and were deciding whether to go along with a specific treatment plan, undergoing a surgical procedure or taking a certain medication, they wanted to know how the treatment works in detail. At the same time, they were still open to consider other treatment options in case the one being considered turned out not satisfactory. Informants in this situation needed help to understand the “hows” of the treatment, such as the steps of a surgical procedure, the working mechanism of a medicine, the potential risk of a procedure, and the side effects of a medication, so as to make a well-informed decision to select the best and most suitable treatment plan. Except for self, family and friends and Internet search engine, they used medical journals and reference books, searched hospital and health agencies’ websites, and asked doctors to get the details of things related to the procedures or medications. As the right treatment
was the key to control or cure their condition, there were informants who used sources from all the six categories. Another combination of sources was self, interpersonal, library and Internet sources. It seemed these sources indeed helped them to making informed decisions by connecting them to relevant sources/information and giving them details about how a treatment works. Again, while informants learned many different things, more of them reported gaining more knowledge on treatment specifics than other things. Again, an example below illustrates this type of situation.

“During the episode of my health issues last spring, I’ve been prescribed many medication and I have used the internet as a way for me to look up these medications and find out what they are and how to use them and what the dangers are and things like that.” (Informant #409, male undergraduate student)

The informant was concerned about different aspects of the medications prescribed to him by asking multiple questions: what actually were the medications supposed to do? How did they interact with other medication? How safe were the medications? And what were the side effects? Matching these questions, he needed help to understand how these medications work. To get answers to these questions, he talked to family and friends, asked his doctor, read journal articles, checked reference books, and searched online. His family supported him by doing some research for him. While the doctor explained how the medicines worked, he relied on medical encyclopedias to understand difficult terminology. Just typing in the name of a specific medicine on the Internet took him right to the web site that concerned that medication. Through this research experience, the informant became more skillful in looking up and researching medications.
Focus of situation 4: dealing with recovery/rehab \((n = 6)\)

All the informants found in this situation were dealing with the recovery and rehabilitation of a family member. After being treated at a hospital, their recovery became a key issue for some informants. At this stage, informants inquired the most about their family members’ chance and speed of recovery and what impact the illness would have on their life in the future. They needed help to find the most suitable place for their recovery, either home or a professional recovery or rehabilitation facility. They also hoped to get help to take care of their daily needs to make things easier for them. They discussed with other family members to weight the pros and cons of different options and search Internet and other organizational websites to locate appropriate facilities. Two of the six informants used a mix of self, interpersonal, library, organizational and Internet sources to get their input. Similar to other situations, they reported getting connected to sources/information and support more than other helps. Meanwhile, these sources did give them the help sought at the beginning: to make decision and to make things easier. During the process, more than half of the informants learned more about patient care.

Below is an example illustrating how one informant dealt with a situation of recovery.

“My father was involved in an accident in which he sustained second and third degree burns. He was hospitalized for several days and is currently recovering at home.” (Informant #053, female faculty)

As her father’s care taker, the informant wanted to learn some useful home treatments and what would be the long-time consequences for her father. She wanted to find someone who could help to take care of him once he was released from the hospital. A totally of seven different sources were used in a seemingly simple situation, including
self, family and friends, doctors and nurses, journal articles, electronic database and Internet search engine. While family members offered to help take care of her father, the doctor and nurses at the hospital taught her how to handle certain situations at home. To supplement, she also did her reading from journals about home treatment and searched online that gave her anecdotal evidence for the effectiveness of certain treatment. During the process, the informants learned about home treatment of burns, which allowed her to care for her father better.

Focus of situation 5: coping with pain/loss (n = 2)

With only two informants facing a situation of this kind, their only information need was to figure out the cause of their problem, why a miscarriage happened to her for one informant and why his father got pancreatic cancer and died for the other. The help they both wanted the most was to get hows, to learn how to cope with the loss for the former informant and to know the whole process of cancer for the latter informant. Their most used sources of input, similar to a few other situations, were self, family and friends and Internet search engine. Both of them used a mix of self, interpersonal and Internet sources. Except for getting connected to source/information and emotional support, the two informants both reported getting help to get control of the situation, in the sense of maintaining emotional control, as miscarriage and grieving were both emotionally intense occasions. While the informant coping with miscarriage understood herself better for her desire for another child, the grieving informant could not help thinking about the nature and meaning of life after the loss of his father. Below is the experience of one of the two informants facing a loss situation.

“I had a miscarriage.” (Informant #407, female faculty)
Behind this only one-sentence description was a quite emotional experience for the informant of dealing with unexpected loss of a life. Naturally the biggest question stood out for her was: why might the miscarriage have happened? In addition to finding out the cause, she also needed help to know how to cope with the loss emotionally. Her input came from five sources, herself, family and friends, the doctor, Internet search engine and other people’s blogs. To find out the cause, she asked her OB who gave her some possible explanations thought not being able to pinpoint the exact cause for her case. She also searched online for medical studies on infertility or miscarriage that gave her more possible causes. Her husband was an important source of support by comforting her and taking care of their daughter more while she was resting in bed. As for coping strategies, reading about other people’s experience on blogs helped her the most as she saw how they reacted to this problematic situation emotionally and coped with it. Through this loss experience, the informant got more understanding about herself in terms of her desire for a second child. It gave her “different perspective” and made her “more grateful for what I have” and also “open to the possibility of having another child.”

*Focus of situation 6: facing with demand of illness on life (n = 17)*

About a quarter of the informants were in a situation where they were trying hard to cope with the great demand of their own or family member’s illness on professional and/or personal life, such as how suffering from depression influenced a person’s school attendance and grade negatively, or the difficulty of juggling work responsibility with family duty of taking care of a patient at home. These informants were searching for strategies that could help them to cope with the difficulties as well as wondering about the chance of recovery to get a better idea of how soon the difficult situation would end.
It is understandable that what they needed the most was help from others in any form to ease their burden, such as giving them more time to do school work, sharing class notes, substituting to teach or working around the house. Being in a difficult situation, they also needed help to be in control to improve things. Among the sources they used, interpersonal ones such as family and friends, students and colleagues and health professionals took a prominent place plus Internet search engine. While no single source combination stood out, informants in this group displayed the most diverse combination of source use by using one of three: self and interpersonal sources, self, interpersonal and Internet resources, or all six categories of sources. However, the most reported helps from these sources were uniform for more than half of them, with getting connected to sources/information, getting support and getting control of situation ranking at the top. Like source use, informants varied a lot in terms of what they learned from the situation, including problem solving/prevention strategies, skills/capabilities, understanding more about self, meaning of life and changed attitude towards others. An example of this situation is as follows.

“A few years ago, at the beginning of my sophomore year, I missed a year of school due to major illness and surgeries. This summer, the disease has come back. I am trying to currently balance illness and still complete my last ten credit hours for my degree. It has been a long and difficult road. But it is almost over.” (Informant #175, female undergraduate student)

Trying hard to balance illness and a demanding school life, the biggest question in front of the informant was how other people with similar experience managed to get by. Ideally, she hoped the whole thing would go away, but realistically, the best help she needed was that she could “get through online classes or independent studies or people being flexible with due dates” so that it would be easier for her to get by. Except for
herself, most other sources of input were interpersonal ones, such as family and friends, classmates, co-workers and professors. Her family provided tremendous amount of support by believing in her ability to get through everything. Students and professors did what they could to make things easier for her, with classmates sharing lecture notes and offering to help with group project and professors giving permission for independent study and giving extra time to assignments. Internet search helped to find articles or materials to write her papers. This experience taught her how to face a tough situation by showing the importance of persistence and perseverance.

Focus of situation 7: worrying about others’ well being (n = 8)

In this type of situations, informants were mostly worrying about a family member’s well being either because the person suffered from an injury in an accident of some sort and they were worrying about the person’s status, or because a family member got ill but the informant could not be available for help. Physical distance from the scene of situation was a common factor for these informants. Given the distance, they cared about if the person’s care needs could be satisfied despite their absence and how long it would take them to get covered. The help they needed then was to get the situation under control as soon as possible. Unable to talking to health professionals due to the distance, they very much relied on family and friends to get update and to search the Internet for relevant information. The most common combinations of sources for them were self, interpersonal, library and Internet sources. These sources gave them comfort and emotional support, got them connected to websites having relevant information, and made them relaxed from worrying too much. From the experience, half of these
informants learned how to prevent similar unfortunate accidents from happening again in the future. An example of this type of situation is illustrated below.

“My mother hurt her leg; however I was in my Ph.D. process, so it made me worried all day.” (Informant #238, male graduate student)

Being away from home, this informant worried about if other people could take care of his mother and wondered whether she would be recovered soon. The help he needed was that the best doctor could diagnose it and gave her the best treatment quickly. He turned to family and friends, university libraries and Internet search engine for relevant input. Family members comforted him by being there for his mother to help; book or journal articles gave him the general information on leg injuries and the severity of the problem, so did the Internet search engine by finding him more relevant information on leg problems. It was his own thinking that helped himself feel better and relaxed by thinking about the situation positively. His mother’s pains made him realize that we really should act now to exercise and protect our health instead of waiting until old when big trouble hits us.

*Focus of situation 8: maintaining health (n = 6)*

In this type of situations, informants focused on maintaining their health by trying to eat healthy, keep on a low-carb diet or quit their healthy habit such as smoking. The questions they asked the most were to find out what were healthy diets and if they were effective. Informants needed help to keep their weight under control or get rid of smoking successfully. Informants in this situation used a variety of sources to get advice from and exchange experience with people in similar situations and to keep track of healthy behaviors reported in media. These sources included self, family and friends, students
and colleagues, mass media, library, organizational sources and chat rooms. Accordingly, two of the six informants turned to all six categories of sources for input. As for how sources helped them, informants reported getting more helps to connect to sources/information, emotional support from others, how to cook healthy following sample recipes and moreover they felt very connected to other people emotionally as they were struggling in similar situations. Except for knowing more about healthy diet options out there, informants also learned how to cook healthy or how to cope with the withdrawal effects from quitting smoking during information seeking and exchange with others. An exemplar situation is provided below.

“I have spent time online researching diets, exercise and weight loss. I try to avoid “fads” and stick to alterations/versions of the tried and true weight loss plan: eat less/healthier and exercise more. I have not joined weight loss organization, but I subscribe to their e-newsletter which occasionally gives me recipes I might like and try fixing.” (Informant #184, female undergraduate student)

In an effort to find the best and the healthiest diet plan to lose weight, the informant wanted to know if these diet and exercise plans would be effective and if their effects would be compromised by her use of birth control bill. The help she needed was to find a practical diet plan that could work to lose her weight without making her "feel deprived" at the same time. She did use different types of sources to search for such a plan, including family and friends, books, newspaper articles, commercial ads, Internet search engine, chat room and personal web pages. While mass media sources and commercial ads raised her awareness of many diet and weight loss plans and the philosophies behind them, talking with people who had weight loss experience in chat rooms and reading their personal web pages gave her advice as to what to try and
testimonials for the effectiveness of certain plans. Meanwhile, the encouragement she got from these people made her feel not alone. As for the implementation of the plan, the informant's mother helped to monitor the process with the Weight Watcher. From the experience, the informant gained knowledge about many different weight loss plans or alternatives for choice.

*Focus of situation 9: looking for health insurance (n = 3)*

In a situation where informants were shopping for health insurance, they wanted to find out different plans provided by different health insurance companies to narrow down to a plan that gave them the best coverage with the lowest price. Therefore, the help needed was to how to find these health insurance providers. To get information on potential providers and their plans, they asked students and colleagues to recommend the plans they used or knew of, Internet search engine to search for possible candidates and mass media, especially newspaper articles and TV programs, to get company name and contact information. However, all three informants used a unique mix of sources. From the table, it seemed these sources did a good job of getting them connected to insurance providers, so did they to give them general knowledge on health insurance policy and regulations. Through calling and talking to insurance representatives, informants got a better understanding of how a heath insurance company works to grant or deny a person’s application. The following example shows us how an informant searched for health insurance.

“The most troublesome situation I have faced lately is trying to obtain an individual healthy insurance policy for my family, since my husband and I both work at home. Our family is healthy, with minor health issues that don’t cause major concerns. Yet we are finding it very difficult to qualify for a policy, and harder still to pay for one if we do. The situation has
involved applying for numerous policies, answering every conceivable question about any and every time anyone has set foot in a doctor’s office, and having at least one family member rejected for every policy that we have applied for. This situation has really brought my attention to the health crisis that this country is facing and the need for some intervention from the government.” (Informant #083, female faculty)

The informant was desperately searching for health insurance providers that could provide them an appropriate policy and at an affordable price. With so many options out there, what they needed the most was to how to find the right policy provider. To achieve this, a total of nine sources of all six categories (self, interpersonal, library, mass media, organizational and Internet) were used. All of them served three major purposes. Some of them, family and friends, commercial ads and personal web pages, provided contact name and numbers for various insurance providers, others, such as insurance representatives and journal articles, gave them a general picture of certain insurance policies and how they work differently. Newspaper printed stories of other people that gave the informant other’s first-hand experience and how they solved their health care problems, so the advice and strategies might be applicable to her situation as well. After going through the hassle, the informant learned through interaction with insurance providers how different health insurance policies work, and to a larger extent, she had a deep personal understanding of the health insurance crisis facing the nation.

Focus of situation 10: solving a medical bill problem (n = 3)

When informants were trying to solve a medical bill problem, they were puzzled by and angry about why their medical bill did not get covered or paid by insurance companies. They wanted to know what to do in order to solve the problem. In the process, they interacted back and forth with representatives from their insurance
companies and discussed with family and friends. Accordingly, the source combination was only self and interpersonal sources. While insurance professionals might give them direction as to what to do to fix the problem, they got emotional support from family and friends. Hard as it might be to get money out of the coffer of insurance companies in the US, two of the three informants learned how health insurance works and how to avoid similar problems in the future. The following presents a situation dealing with medical bill.

“Recently, I had to have an MRI performed on both of my knees. I had to go to a special MRI facility because my doctor doesn’t have the equipment at his office. So the secretary set up the appointment with this MRI clinic. The clinic said they take my insurance, so I thought everything was fine. However, this clinic was not in my insurance companies’ network of facilities for which they will cover 100% of the cost. I didn’t find this out until after the services were provided when I was presented a bill in which I had to pay 80% of the cost. I was furious….I contacted the MRI clinic to find out why they didn’t tell me that my insurance was fully covered and they mentioned that they will take all insurance money. I contacted my insurance company and they said that it was my responsibility to make sure that the facilities I use are IN-Network facilities. So I had to pay the bill, but I know now that I have to do my own research. Never let the doctor’s office set up an appointment with other facilities.” (Informant #094, male faculty)

As described above, the informant wanted to know why his bill was not covered by his insurance, as it should have been. He hoped that the insurance company would give him a “better explanation of what had happened and what I need to do next time to prevent it from happening again.” Given the dispute was among him, the MRI clinic and the insurance company, only three sources were used here, himself, family and friends and health and insurance professionals. He got understanding and support from his family for being in an unhappy situation, and his insurance provider explained to them what went wrong and told them what to do in the future. As a result, the informant felt that he
learned how health care works and, in the future when it comes to choosing facilities, he will “go home and make sure that these are in network” instead of doing it in a rush at a doctor’s office.

Intersection of Academic Rank and Situation and Information Seeking and Use Behaviors

After looking at how academic rank and focus of situation relate to informants’ health information seeking and use behaviors separately, it is meaningful to see if how the intersection of these two factors affected their information behavior. Given the unequal number of informants in each type of situation, only four types of situations were identified in which there was more than two informants from each academic rank to make the comparison possible. The four types of situations were: looking for a diagnosis, searching for treatment options, understanding working of treatment and facing the demand of illness on life. Table 4.17 below is a summary of the results for the comparative analysis. Like the analysis of focus of situation, only the sub-categories reported by at least half of the informants in each group was listed in the table; therefore the results demonstrated themes or patterns in terms of information seeking and use. As no themes were identified for any academic groups in terms of what people learned in the situation, this category was dropped from the summary table. From the table, we can see that the intersection of academic rank and focus of situation did affect different aspects of information behavior, but in different ways for different types of situations.
<table>
<thead>
<tr>
<th>Focus of situation</th>
<th>Rank</th>
<th>Information needs</th>
<th>Helps sought</th>
<th>Sources used</th>
<th>Source combination</th>
<th>Helps from sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Looking for a diagnosis (n = 11)</td>
<td>Fac</td>
<td>Diagnosis, treatment options</td>
<td>Get control</td>
<td>Self, Internet search, family and friends, health professionals, library</td>
<td>Self, interpersonal, library and Internet</td>
<td>Got connected, got support, got general understanding</td>
</tr>
<tr>
<td></td>
<td>Grad</td>
<td>Diagnosis</td>
<td>Get connected</td>
<td>Self, Internet search</td>
<td>No pattern</td>
<td>Got connected, felt human connection</td>
</tr>
<tr>
<td></td>
<td>Under</td>
<td>Diagnosis, cause</td>
<td>No pattern</td>
<td>Self, family and friends, Internet search,</td>
<td>Self, interpersonal and Internet</td>
<td>Got connected</td>
</tr>
<tr>
<td>Searching for treatment options (n = 13)</td>
<td>Fac</td>
<td>Treatment options</td>
<td>Get control</td>
<td>Self, family and friends, Internet search, health professionals, library</td>
<td>Self, interpersonal, mass media, org and Internet</td>
<td>Got connected, got support, made decision</td>
</tr>
<tr>
<td></td>
<td>Grad</td>
<td>Treatment options</td>
<td>Get control</td>
<td>Self, family and friends, Internet search, students, health professionals</td>
<td>No pattern</td>
<td>Got connected, got support, things got easier</td>
</tr>
<tr>
<td></td>
<td>Under</td>
<td>Treatment options</td>
<td>Get control</td>
<td>Self, family and friends</td>
<td>No pattern</td>
<td>Got hows</td>
</tr>
<tr>
<td>Understanding working of treatment (n = 12)</td>
<td>Fac</td>
<td>Working of treatment</td>
<td>Get hows</td>
<td>Self, family and friends, Internet search, health professionals, library</td>
<td>Self, interpersonal, library and Internet</td>
<td>Got connected, made decision, got support</td>
</tr>
<tr>
<td></td>
<td>Grad</td>
<td>Working of treatment</td>
<td>Make decision</td>
<td>Self, family and friends, Internet search, library, organization</td>
<td>All six source categories</td>
<td>Got connected, made decision, got control</td>
</tr>
<tr>
<td></td>
<td>Under</td>
<td>Working of treatment</td>
<td>No pattern</td>
<td>Self, family and friends, Internet search, library, organization</td>
<td>No pattern</td>
<td>Got connected, made decision, got hows</td>
</tr>
<tr>
<td>Facing demand of illness on life (n = 17)</td>
<td>Fac</td>
<td>Chance of recovery</td>
<td>Get control</td>
<td>Self, family and friends, Internet search, health professionals, library</td>
<td>All six source categories</td>
<td>Got connected, got support, made decision</td>
</tr>
<tr>
<td></td>
<td>Grad</td>
<td>Coping strategy</td>
<td>Get control, things get easier</td>
<td>Self, family and friends, students, professors</td>
<td>No pattern</td>
<td>Got control, things got easier,</td>
</tr>
<tr>
<td></td>
<td>Under</td>
<td>Cause, chance of recovery</td>
<td>Things get easier</td>
<td>Self, family and friends, students, professors</td>
<td>Self and interpersonal</td>
<td>Got support, things got easier</td>
</tr>
</tbody>
</table>

Table 4.17: An overview of the intersection of academic rank and focus of situation on information seeking and use behaviors
The Impact of the Intersection on Information Needs

As shown by the table, the intersection of academic rank and situation affected information needs only in two types of health situations. In a situation where informants were focusing on looking for a diagnosis for their medical conditions, while all faculty members, graduate and undergraduate students asked questions about the correct identification of their problems, professors also wanted to find out possible treatment options whereas undergraduate students inquired about what caused their medical problems. In a situation where informants were struggling to balance illness and professional or personal life, faculty informants were more concerned about the chance of recovery, while graduate students wanted to learn strategies to cope with the difficulties. For undergraduate students, they cared about both the cause of their problem and the chance of recovery as well.

The Impact of the Intersection on Helps Sought

As the table showed, the intersection of academic rank and situation related to the helps sought by informants in three types of health situations. In a looking-for-diagnosis situation, faculty informants needed help to get control of the troublesome situation; in comparison, graduate students needed most to get connected to sources or information and the three undergraduate students were all seeking totally different helps. When informants were considering certain procedure or medication as the treatment option, the help sought most by faculty informants was to know the details of how the treatment is supposed to work while graduate students hoped to get help to make a right decision. Again, all undergraduate students needed different helps. If we look at how informants coped with demand of illness on their life, faculty informants wanted to keep the situation
under control and undergraduate students were more likely to seek help to make things easier for them; instead, graduate students needed both kinds of helps.

The Impact of the Intersection on Sources Used and Source Combination

Compared with information needs and helps sought, the intersection of academic rank and situation influenced source use in all four types of situations. When focusing on getting a diagnosis, faculty informants turned to the most number of sources comparing with student informants. Three of the six faculty informants used a combination of self, interpersonal, library and Internet sources, in the order of self, Internet search engine, family and friends, health professionals and library. While the two graduate students did not have commonality in source combination, the two common sources used by them were self and Internet search engine. The undergraduate students, however, used self, family and friends and Internet search engine.

In searching for treatment options, faculty and graduate students shared four of the five most used sources, self, family and friends, Internet search engine and health professionals. For the fifth source, faculty informants preferred library sources while graduate students went to students and classmates for input. In comparison, the two undergraduate students only shared two common sources, self and family and friends. As for source combination, three out of the seven faculty informants used a mix of self, interpersonal, mass media, organizational and Internet sources, while neither graduate nor undergraduate students displayed any pattern in source combination.

In situations where informants wanted to know how a certain treatment works, five most used sources, self, family and friends, Internet search, library and organizational sources, were shared by graduate and undergraduate students; for faculty
informants, the organizational source was replaced by health professionals. In terms of source combination, three out of six faculty members used a mix of self, interpersonal, library and Internet sources, two out of three graduate students used all six categories of sources, but there was no pattern for undergraduate students.

For the last situation of coping with the demand of illness, again, graduate and undergraduate students shared four most used sources, self, family and friends, students and professors. However, while four out of six undergraduate students only used self and interpersonal sources, the three graduate students all used different combinations of sources. By comparison, the five most used sources for the eight faculty informants in this situation are self, family and friends, Internet search, health professionals and library, with half of them using all six categories of sources.

*The Impact of the Intersection on Helps from Sources*

Same as source use, the intersection of academic rank and situation related to how informants felt they were helped in all four types of situations. When looking for a diagnosis, all three groups of informants reported getting connected to sources or information the most. After that, most faculty informants also got emotional support and general understanding of certain disease, both graduate students felt connected to other people in similar situations.

When searching for treatment options, the two undergraduate students both reported getting hows (strategies, procedures or examples). Faculty and graduate students showed a commonality that they both felt getting connected to sources or information and support more than other helps. The only difference existed that more faculty members got
helps to make decision while more graduate students got help that made things easier for them.

As for understanding the working of certain treatment, informants from the three academic groups shared the two most got helps. The sources helped them connected to other sources or information and make decisions more than giving them other assistance. But besides this, within each group, more faculty got support from sources, more undergraduate students got detailed procedures or process of treatments while sources helped more graduate students to get control of the situation.

In face of the challenges illness posed to their life, within each group, more faculty members felt that the sources consulted helped them get connected to sources or information, to make decisions and offered them emotional or concrete support. For students, while they both said the help from sources made things easier for them to handle, more graduate students got help in keeping things under control and more undergraduate students got support as input from sources.

Comparison and Contrast of the Results from the Two Analysis Approaches

Designed to capture all that is involved in a complex phenomenon, Schatzman’s grounded theory dimensional analysis derived categories and dimensions pertaining to the whole process of information seeking and use by 81 informants in health situations. Through these categories and subcategories supported with informants’ own narrative words, we are able to have a comprehensive understanding of all aspects of information seeking and use in a holistic way. It is clear that information seeking and use cut across a vast range of issues, from information needs, source or channel use, to source
evaluations, source helps/hindrances and situational learnings. The analysis then went up an abstraction level to position all the key dimensions on an explanatory matrix of context, conditions, actions/behaviors and outcomes. After the relationships among these dimensions were elaborated, a conceptual framework or model of situated information seeking and use in context was developed to explain informants’ lived experience of information seeking and use during their health situation facing.

Guided by the Sense-Making metaphor, Dervin’s Sense-Making Methodology guided situational contingency analysis sought to capture time-space specific moments of information seeking and use by comparing two different factors, one demographic and the other situational, to see if and how they each and together related to various information behavior in terms of information needs, helps sought in the situation, sources used and evaluation, sources helps and situational learnings. As a result, themes or use patterns were identified and presented in contingency tables to describe the contingencies of different information behaviors as impacted by different “predictor” factors at a specific time-space moment of information process.

While both of them attend to information seeking and use from a process perspective and apply grounded inductive analysis, the ultimate goal of Schatzman’s grounded theory dimensional analysis was theory or model development. It aimed to explain informant information behavior as a process when they are engaged in a health situation of some sort. Therefore, the model explained information behavior at a general level. In comparison, Dervin’s Sense-Making Methodology guided situational contingency analysis looked at specific moments of situation facing, thus it displayed a more situated picture of information seeking and use activities. In combination, they
complemented each other by showing the potentials of grounded theorizing approach in
general and different analysis approaches in particular on enlarging health
communication theorizing and understanding situated health information seeking and use
behaviors.

Methodologically, Schatzman’s grounded theory dimensional analysis was
conducted using a qualitative approach with inductive analysis of narrative data, though
allowing the help of deductive thinking. It started with the interview data and ended up
with a theoretical model. In comparison, Dervin’s Sense-Making Methodology guided
situational contingency analysis required the guidance of the Sense-Making metaphor as
a deductive tool together with the force of inductive analysis of data. In this dissertation,
the key categories derived from Schatzman’s grounded theory dimensional analysis
matched the key elements of Dervin’s Sense-Making metaphor, providing more evidence
for Sense-Making Metaphor’s usefulness as a deductive model for health information
research.
CHAPTER 5

DISCUSSION

The purpose of this chapter is to summarize and discuss the empirical findings reported in chapter 4 as they intersect with the extant literature in health communication. Recall that a major objective of this dissertation has been to bring to bear on health communication issues studied in the communication field the qualitative approaches often applied to information seeking and use in the LIS field, particularly its information seeking in context contingent. For discussion purposes, the distinctions between the two fields as sources of extant literature are collapsed and rather the focus is on the empirical evidence gleaned in this dissertation adds to or contracts with prior empirical evidence. The order in which various issues are discussed follows that in chapter 2 on literature review.

On the Perceptions of Situation Origin

For informants in this dissertation, the process of information seeking started when they were struck with a health problem of certain kind. Informants perceived their involvement with the situation in four different ways even if they were facing similar situations. Given that these situations were mostly about problems affecting their health, few informants chose to get into a problematic situation voluntarily. Likewise, few
informants thought the situation had been imposed upon them by purely uncontrollable and unpredictable factors. More informants held the view that health problems are something that just happens and are a natural part of life and aging. Another more popular view was that informants attributed the origin of the situation to both uncontrollable factors from outside and their personal responsibility to take care of themselves and families from inside. One thing to note is that the ways informants perceived situation did not seem to affect their subsequent information behaviors in terms of information needs and source use. This is easily understandable because whatever led to the situation, informants had to face it and deal with it as it was their personal health that was at stake. At that moment, the cause of the situation was much less important than the resolution of it.

On Information Needs

Similar to Kutner et al’s (1999) research, informants in this dissertation reported a variety of needs regarding all aspects of a health scenario. Disease-related questions and needs were still reported the most in that almost each informant inquired about something related to the symptoms, diagnosis, prognosis, treatment or recovery of a health problem. This was due to the fact that most of these informants were dealing with a specific illness incidence and wanted to bring it under control or cure the disease as soon as possible. Like Kutner suggested, questions about the disease was only part of the picture. Informants were equally concerned about various illness issues brought by the disease, such as patient care needs, psychological or emotional impacts, coping skills or strategies and the impacts of illness on personal or social life. Sometimes these needs were even more important than treating the disease itself because it was relatively easy to take care
of the biology part to treat and cure a disease, but it was extremely difficult to cope with the emotional, psychological and social effects accompanying the disease. Among these illness-related needs, the impact on life, mostly how to balance illness with other life responsibilities, stood out as an important concern for these informants. Meanwhile, the financial burden of health care became a pressing issue for some informants as health care cost continued to skyrocket in this country. Except for the increasing difficulty to get an affordable health insurance policy, getting necessary medicines and procedures covered by insurance had also become a difficult battle for a few informants. Related to this financial burden was informants’ desire for access to more resources, such as money and time, in order to get access to better physicians and better health care.

Similar to the approach that looked at information needs throughout the course of the disease journey, data analysis indicated that information needs varied from stage to stage during an illness experience. However, differences existed between this dissertation and previous research in that this dissertation compared the information needs of different people at different stages of a disease, instead of the change of information needs of same people at different stages. The stage of disease was further combined with the nature of situation into a measure of situation (focus of situation) so as to look at how this situational factor influenced information behavior. The results will be discussed later in this chapter.

On Source Use

The data analysis showed that the 81 informants-in-situations used on average six sources for input in their situations. There was huge variability in terms of the number of sources used in each situation, ranging from 2 to 17 sources. Comparing across academic
rank, informants did not differ in the least number of source used, but a faculty turned out to be the person who used the most number of sources in a single situation. At the same time, faculty informants on average used more sources than graduate students, followed by undergraduate students, consistent with previous study results that people with higher education level tended to use more sources. As for types of sources used, informants used six categories of sources with different sources or channels under each. These were a whole range of sources, from traditional mass media, library, to the most efficient Internet search engine and other electronic sources. Regardless of academic rank, family and friends were the most used sources except for the self used as a source by default, also consistent with previous research findings on health information seeking. The fact that 68 out of 81 informants used Internet search engine provided evidence that Internet has already become a key source for health information despite widespread concern about the quality of online health information.

What is different from many previous studies is that health professionals no longer stayed at the top of the list of sources used by informants. For informants across all academic rank, they came after self, family and friends, and Internet search engine. Comparatively, more faculty than students used health professionals. When further comparing graduate vs. undergraduate students, more graduate students used library resources while more undergraduate students turned to classmates and co-workers for input. This suggested that faculty, as the most educated among all, seemed to hold the medical expertise and authority of doctors in higher regard than students. Another notable difference across academic rank was the use of personal websites and chat rooms. As academic rank went up, the use of these online sources decreased. While 50% of
undergraduate students (11 out of 22 people) used personal website or chat rooms, only 28.5% of graduate students (6 out of 21 people) used either one, and still less, only 23.6% of faculty informants (9 out of 38 people) reported turning to them at certain point. This suggested that undergraduate students preferred sources that they could access very easily and quickly and at the same time gave them interactive experiences.

Analysis on source combination showed that informants used a variety of combinations of sources in information seeking. The mix of self, interpersonal and Internet search engine turned out to be the most used source repertoire shared by almost one fourth of the informants. While the majority of informants did use a certain source combination pattern, one fourth of them used very unique mix of sources of their own, indicating that what source repertoire information seekers selected is still a complex issue and difficult to predict. Looking within academic rank, the three groups share the source combination of self, interpersonal and Internet search engine. The majority of faculty informants followed one of three patterns, with one of them being the mix of all six categories of sources. Graduate students did not seem to favor a particular pattern while more undergraduate students used self, interpersonal and Internet sources. The fact that most informants who used a combination of all six categories of sources were faculty informants suggested that a higher education level might relate to a great variety of sources used. On the other hand, there was a much higher percentage of undergraduate students whose source use were totally unique compared with graduate students and faculty members, indicating that undergraduate students had the most diverse and complex source repertoire among all informants.
On Uses of Information

Previous research showed that health information had multiple benefits for patients and their family members, such as increased knowledge about diseases and treatments, increased patient involvement in their medical decision making, better coping ability with illness and reduced stress and anxiety. Data analysis in this dissertation also identified many helps that informants got from various sources or channels, including getting connected to sources/information, getting control of situation and making decisions. These helps were seen from a process viewpoint in that they helped informants on their journey of information seeking and use in facilitating their movements or actions in a health situation. Consistent with the Sense-Making approach to information helps, the helps categories identified in this dissertation echoed those from previous Sense-Making studies. Among these helps, regardless of informants’ academic rank, the most mentioned helps were in order: Got connection to sources/information, got support, made decisions, got control of situation, and got hows to cope with a health problem. Comparatively, few informants mentioned helps such as getting relief/relaxation or getting motivated/started. So why did informants get some helps more and other helps much less?

The number one help reported by informants was getting connected to sources/information. This suggested that given the insufficient medical knowledge informants had across academic rank, one important task of their information seeking was to find as much relevant information as possible from sources other than their physicians, partly due to the limited consultation time they had with them during doctor
visit. As a result, sources that could link them to credible and trustworthy information were especially valuable to them. Got support came second as the most reported helps, which is understandable in that without emotional/spiritual or other social support from people around them, it would be extremely difficult for an informant to get through a physically stressing and emotional taxing experience. Similar as facing other problems, making the right decision was also a key to fix a health problem for informants, especially when they jointly made decision for their health care with doctors under the new patient-oriented model. The most popular way that sources helped informants to make decisions was by providing any possible options or alternatives in terms of diagnosis and treatments so that informants could weigh the pros and cons of all options before making a better-informed decision. Got control of the situation was another help most informants got from sources. This help was desired as informants were dealing with highly uncertain and stressful health problems that often had far-reaching impacts on one’s well being. Therefore, to maintain cognitive control was very important for informants to cope with changes cognitively. In addition, keeping emotional control of the situation was also considered as important as the cognitive control, though it was only reported by a very small number of informants.

When considering the least reported helps from source input, only two informants reported getting relief/relaxation, with one of them reading a fiction book to take his mind off worry for a sick grandmother. A possible explanation for the lack of help of this kind might be that when a person was suffering from an illness and worrying about its consequences, it was very difficult for him/her to really feel relaxed unless the problem was solved on time successfully. Another help that was reported by few informants was
getting motivated/started. An plausible explanation could be that most informants were self motivated enough to take their health care into their hands that they did not really need much motivation from other sources to get started in their information seeking efforts.

Looking at the relationships between sources and types of helps, different sources were able to provide the same kind of helps, such as connecting to other sources/information or getting control of the situation. This provided opposing evidence to the traditional notion in communication field that information sources and their functions are matched in a specific ways. For example, TV is supposed to entertain while newspaper is supposed to provide factual information. Moreover, while offering the same kind of help, a source helped informants in different ways. For example, the major function of the Internet search engine was to take informants through links to web sites with relevant information, but how informants used the search function varied from situation to situation. Sometimes, informants used it to expand the breadth of information by connecting to as many websites as possible, sometimes they used it to narrow down the scope of information, and other times they had only one particular web site in mind and Internet search engine served as the most efficient way to get to the targeted information source.

However, having said the above, there were also some patterns that a certain source tended to provide a certain type of help. For example, doctors were the key source to give informants directions to follow even if informants got input from many other sources that assisted them in making a decision. This suggested that while informants were open to opinions and suggestions from all possible sources, when deciding what
actions to take, they still seemed to trust doctors more in telling them what to do next. Another example was to get emotional or spiritual support. In this dissertation, social support still mostly came from interpersonal sources, with family and friends as the number one source to provide it. Sometimes, the support came from somebody totally out of informants’ expectations, such as strangers on the street. Among all interpersonal sources, informants reported little emotional support from their doctors. It is not clear from this dissertation whether informants wished to get social support from their doctors, but in an indirect way this suggested a limitation of doctor’s helpfulness that seemed to only extend to the medical issues of a health situation.

The above findings on the relationship between sources and helps are consistent with the results of a few other studies applying Sense-Making Methodology to health issues. For example, an analysis on sources used and helps by faculty and students in the larger project from which the data for this dissertation was drawn showed that while there were patterns of differences between sources and how they were used, there was actually as much variation within as between and any given source was likely to be used in any given way (Dervin et al, 2006).

On Information Barriers

In general, informants were able to access the sources they wanted. Among the one-fourth of them who could not access a source preferred, situational and personal factors turned out to be the major barriers. The time-space constraints, mainly inconvenient time and physical distance, were the major situational barriers. Interestingly, all informants who came across situational barriers were all trying to access interpersonal sources, supporting the finding that interpersonal sources are the most used
information sources in health situations. As for personal barriers, lack of resources in the form of time, money or communication media prevented a few informants from accessing to a certain source. Similarly, most of them were also interpersonal sources. Few informants reported the lack of motivation or effort as source barriers and when it did constrain them, it was not in a negative sense because the informant was already equipped with previous experience dealing with similar situation, which made the one source, maybe desired but not reached, not highly critical.

Compared with barriers to source access, there were a variety of limitations or characteristics of sources or input, in the eyes of informants, which prevented them from getting the fullest help. Informants used different relevant judgment criteria to evaluate the helpfulness of source input, depending on what they were evaluating, a source, a channel, information content, or a situation. When evaluating sources, they used three same criteria – expertise, previous experience and objectivity – to judge self as a source and other formal or informal sources. Among them the lack of expertise was named the most as the information barrier. This supported the importance of medical knowledge, credibility and authority, as informants perceived, in offering helpful input. In addition to the commonalities, informants were not satisfied with their lack of effort and rationality while they wished to get more resource, efficiency, and emotional support from interpersonal sources. Similarly, institution sources were also complained for its lack of efficiency and resource, which is understandable given the fact that institutions were usually constrained by layers of bureaucracy and red tapes and its ongoing under funding problems.
Among the barriers of information channels, lack of interactivity was mentioned as the major one. Meanwhile informants conceived interactivity in different ways for traditional mass media vs. Internet channels. Contrary to communication research that often commemorate interactivity as one big advantage that Internet sources enjoy over traditional communication media, informants in this dissertation thought Internet channels, such as chat rooms and search engines, lacked interactivity in terms of interacting with another human being face-to-face. For them, as efficient and fast as they could be, these Internet channels could not grant them in-person meetings that were considered more credible and trustworthy than talking to an unknown person online.

Informants applied the most number of criteria to evaluate the helpfulness of information content. Different from those for sources and channels, these criteria covered across a wide range of characteristics of information content, from its applicability, quantity and different aspects of quality, including specificity, difficulty, objectivity, consistency, accuracy and currency. On top of the list was the applicability of information. That more informants reported the lack of applicability as a content barrier showed that the quantity and quality of information were all overshadowed by the importance of whether they could be useful in their unique situation to address individual needs. No matter how much or how good the information was, it would be less useful if the input could not be transferred to someone’s situation. Lack of specificity was the second content barrier, showing that informants needed more detailed or in-depth information. It is a bit surprising that very few informants complained about the accuracy of information, indicating that they had a generally high level of trust in sources’ ability to offer them true and accurate information.
A second dip into evaluation criteria revealed that specific sources or channels seemed to related to certain evaluation criteria. For example, doctors and reference books were evaluated more by informants as lacking specificity than other sources, mostly due to the limited consultation time doctors had for patients and the conciseness required by reference books. Commercial advertisements or materials were the only content deemed lacking objectivity attributed to their promotional and sale motive. Incomplete information mostly came from doctors and commercial advertisements. This once again confirmed informants’ complaint about the shortage of time for medical consultation with doctors. The explanation for commercial advertisements could be that its concise format did not give enough space for more in-depth information and its promotional motive spoke for sometimes intentional missing out of important information. When talking about the difficulty of information as a criterion, informants used it mainly on library sources, such as reference books, journal articles and medical books. What hindered them the most were the difficult jargons or medical terms that bothered all informants regardless of academic rank. Lastly, while the accuracy of information was not a barrier for most informants, a few informants were indeed worried about the information content on web sites, indicating that even while more and more credible health information were available online, a minority of people still had reservation about its accuracy.

Beyond the limitations of sources, channels and information content, informants also felt constrained by three situational factors that made it impossible to get perfect answers to their questions no matter how many sources or channels they could get hands on. The uniqueness of rare situations, unpredictability of life-threatening situations, as well as situations simply irresolvable all pointed to the impossibility of fully satisfying
health information needs due to the often highly difficult, complex, and always changing nature of health situations. The difficulty to overcome these situational barriers also gave justification to their information satisficing behaviors.

On Situational Learnings

Right in the middle of a health situation, informants might feel stressed and overwhelmed by an ordeal, but when reflecting back, they learned many different things from that experience. In fact, other Sense-Making studies have shown that even in highly emotional experiences, sense-makes keep learning, but what they learn changes (Dervin & Foreman-Wernet, 2003). In this dissertation, informants learned about all aspects of a situation, such as the disease itself, patient care, people’s attitude and belief, relationship with others and problem solving strategies. Among them, the most reported learning was that informants gained some knowledge on certain disease/treatment and on self-care/care taking. As most informants thought themselves as lacking medical expertise, it makes sense that they would treasure the new medical knowledge. Specifically, when informants were confronted with a rare disease or a condition unknown to them, they tended to emphasize more about the newly obtained knowledge. While knowledge about patient care covers a wide arrange of issues, such as how to take medicines, how to monitor behavior, and so on, a topic that informants gave special attention to was diet, possibly because other care issues seemed rather routine and thus did not warrant being mentioned as special learning. The focus on diet suggested that informants became to realize the important role of diet in health care that might have been overlooked before.

As for the least reported special learning, informants did not seem to contemplate too much about the true meaning of life unless they were dealing with a severe and life-
threatening illness or grieving for loss. Compared with other regular or mild disease, like a sore knee or a broken bone, the close contact with death was more likely to throw them into deep thinking about life as the physical pain and the lurking danger of death gave them a first-hand experience of the frailty of human body and the impermanence of life. Often the unpredictability and uncertainty of life and death made them take a fresh and different perspective on life to be content with and cherish for what they have already had. While other studies on illness experience showed that illness had a huge impact on how patients thought about their self and identity, learning more about one’s self was not a theme in this dissertation. An important reason is that this dissertation focused on people’s information seeking and use experience rather than how they coped with illness. As a result, the questions were more about their information needs and source use patterns, leaving less space for informants to dig into their sense of self. After interacting with different interpersonal sources, some informants’ perception of certain source changed dramatically, in both positive and negative directions. Worthy of noting is that almost all informants reporting negative attitude changes lost trust in their doctors while the positive attitude changes usually happened with other interpersonal sources. This might be explained by the psyche that any disappointing interaction with doctors might more easily get emphasized by informants and could easily erode their trust in doctors because doctors were supposed to be helpful by doing all the right things. On the contrary, when not expecting too much from other people, informants were more likely to present positive attitude changes when these people offered them out of ordinary helps.

As shown by Dervin’s Sense-Making Methodology guided situational contingency analysis, academic rank did not relate to what people learned from the
situation. While it would be very difficult to pinpoint what factors led informants to learn certain things since probably a mix of factors worked to the effect, informants in a specific type of situation were more likely to report certain learning. Discussion about this relationship will be detailed in a section below.

When asked about why they thought what they learned was special, informants consistently talked about them in a future-oriented way. Regardless of what they learned, they considered it special because the learning could benefit them in the future in addressing similar situations or extend to help in other life situations. For example, if a similar medical condition takes place in the future, equipped with adequate knowledge on diagnosis and treatment, informants would feel better prepared psychologically and have a better sense of control. If what they learned were useful attitude/belief or specific problem solving strategies, be it the importance of self-reliance, perseverance, assertiveness or faith, they would be applied to all other adversary situations with similar nature.

On Information Seeking as a Process

This dissertation developed a model of situated health information seeking and use. In its entirety, it showed information seeking as a process. At the beginning, an informant was confronted with a health-related situation defined by a set of contextual factors. As he entered the situation, he perceived his involvement with it in different ways by attributing it to different factors. Facing a problem to be resolved, he identified information needs reflected by asking questions, and turned to various sources for input to help him answer the questions. During this process, personal or situational factors might block his access to a certain source totally, and some characteristics related to
information content, sources, channels or the situation rendered them less helpful that he wished. With the input from various sources or channels, the informant got helps of
different kind as he got through the situation, and occasionally the input hindered him by
making him feel overwhelmed, worry excessively or feel confused. Eventually, when
reflecting on this whole experience, he usually learned something special from this
specific situation. To put this model in the larger context of information seeking research,
it may be helpful to compare it with a few key process model of information behavior
mentioned in the literature review chapter.

Ellis’s model (starting, chaining, browsing, differentiating, monitoring, extracting,
verifying and ending) focused on specific information seeking behaviors independent of
context. Instead of talking about the information behavior as “stages”, Ellis presented
these characteristics as features or elements of behaviors that may occur in different
sequences with different persons. Similarly, Cole’s model (opening of the information
process, representational activity, corroborating evidence searched for, closing of the
information process, and effect of information process) centered on information seeking
behaviors independent of context, but was presented as a process with different stages
that took place one after another in a time frame. Also presenting the information seeking
process in a linear fashion, Kuhlthau’s Information Search Process complemented Cole’s
model by attaching thoughts, feelings and actions to the various stages. In associating
thoughts with feelings and actions, Wilson saw her model as “phenomenological, rather
than cognitive” (1999, p. 55).

Comparing with the three process models that did not include the effects of
context on information seeking, the model developed in this dissertation treated context
as an important background and identified contextual factors at different levels that affected information needs and source use. Rather than focusing on finding patterns of information seeking behaviors like Ellis and Cole, the model took on the whole information seeking and use experience by focusing on the context, conditions, actions/behaviors and outcomes/consequences dimension of a health-related situation. Therefore, if the three models appeared to be microanalysis of information seeking behaviors, this model is mid-level and more general in targeting all key dimensions and their relationships. Under actions/behaviors were actions relating to all stages of situation-based information experience, including accessing the situation, identifying needs, selecting sources and reflecting on outcomes. With inductive analysis of people’s own words from their real lived experience, the model is more of interpretive nature than cognitive.

Two process models that directly dealt with context were developed by Brown (1991) and Wilson (1999). Brown’s model identified three dimensions of information behavior: context, condition and process. Although context here referred to attributes of the information seekers and the environment, the physiological, cognitive and affective needs of the user became the focal element. Wilson’s framework was a model of general information behavior, with the focus being the context of information need represented by three groups of variables -- person, social role and environment -- and different types of information-seeking behaviors that included passive attention, passive search, active search and ongoing search. It also included a set of intervening variables -- psychological, demographic, role, environment, and source characteristics -- as facilitators or barriers to information seeking. In addition, he also incorporated three
theories from other fields in explaining the activating mechanism between context and information seeking behaviors.

Relating to these two models, one component of information seeking and use, missing from Brown and Wilson’s frameworks but an important dimension in this dissertation, is the uses or outcomes of information-seeking behaviors. Through information seeking and sense-making, how the input helped informants to fulfill information needs and solve problem is an equally important part of their health information-seeking experience, as reflected by the three dimensions under outcomes in this dissertation: information helps, information hindrances and situational learnings. Compared to Brown’s focus on self as context, the model in this dissertation identified three layers of contextual factors. More commonalities were found between Wilson’s model and this dissertation in that Wilson also talked about different layers of context, with different factors though, and source characteristics as a type of intervening variable to information seeking. However, Wilson presented a more complex model by taking into account various activating mechanisms.

One of the few health information-seeking models is Johnson’s Comprehensive Model of Cancer-related Information Seeking (CMIS). As a contingency model, it postulated that four health-related factors – demographics, direct experience, salience and beliefs – determined two information carrier factors – perceptions of information carrier characteristics and utility – which, in turn, determined information seeking actions. Coming out of a standard quantitative factor analysis, the model was presented as “bare bones” of a causal structure by Johnson. Comparing this model with the one in this dissertation, while experience serves as a factor that influenced information seeking for
both, it was conceptualized as a health-related factor in CMIS but as a personal factor in this dissertation. While information source utility worked as mediators in CMIS, evaluation criteria turned out to be one of two major information barriers to constrain source usefulness here. In CMIS, information-seeking action was simply measured by the scope and depth of magazine reading, while in this dissertation information-seeking actions represented all the important stages of movements going through a health situation. In addition, when CMIS was developed to predict specific information-seeking actions using only magazine as a source limited to information seeking on breast cancer, the framework of this dissertation aimed to explain the whole information seeking and use experience as a totality across a variety of health situations.

The model in this dissertation were mostly akin to Dervin’s Sense-Making Theory in the sense that most of the dimensions identified in informants’ health information seeking and use experience matched the key elements of Sense-Making Theory as exemplified by the metaphor presented in chapter 3. In relation to the four key elements of situation, gap, bridge and help, this dissertation identified key categories corresponding to each of them, such as gap represented by identifying information needs and bridge by source use. However, Sense-Making key elements cover much more dimensions of information seeking and use than those identified in this dissertation. The difference is that while Sense-Making used a triangle metaphor to present its key elements, this dissertation presented the health information seeking and use experience in a dimensional framework of context, condition, actions/behaviors and outcomes. In addition, how informants perceived themselves as entering the situation was also highlighted as an important dimension of action. Also, complementing the information
helps and hindrances in Sense-Making was the key category of situational learnings. Given that the data collection was under the guidance of Sense-Making Methodology, it probably would not be surprising to find these matches here. However, using grounded inductive analysis to come up with similar dimensions provided further evidence of the potential of using the Sense-Making metaphor as a deductive tool for inductive analysis as mandated in Sense-Making Methodology (Dervin & Foreman-Wernet, 2003).

On Information Seeking in Context

Broadly speaking, context is considered as a certain background for something that the researcher wants to understand and explain (Pettigrew, 1987). This dissertation adopted the objectified notion of context in that context was conceptualized as the background for studying people’s information behavior. At the same time, admitting that information seeking and use is also situational, the dissertation took the approach of Chang and Lee (2001) to distinguish context and situation. In the same general health context, informants were seen as situated in different situations that were conditioned by a set of contextual factors. As a result, situational factors were not conceptualized as part of context and treated as contextual factors like other studies did. Three levels of contextual factors were identified: structural/organizational/social factors, personal experience and illness-related factors. These factors together defined the situations in which informants’ health information behaviors were embedded. This objectified approach to context differs from the interpretive approach to context that Sense-Making Methodology takes in that 1) Sense-Making Methodology has a broader definition of context that includes power structures, institutional characteristics, life patterns and 2)
Sense-Making Methodology does not see context as background for but as inherently intertwined with information behavior.

Given the complexity of all contextual factors intersecting to affect information behavior, Schatzman’s grounded theory dimensional analysis did not focus on teasing out how these contextual factors affect particular information seeking behaviors. Rather, the analysis aimed to identify the common contextual factors that defined the different types of situations by suggesting the possible ways of how they would influence information seeking in general. For example, structural and social factors could constrain informants’ access to certain information sources; more or less personal experience with a certain illness could affect the number and types of sources used; the severity of illness, as an illness-related factor, was also associated with information needs and number of sources informants used.

For the purpose of identifying specific patterns of information seeking and use behaviors, a person-in-situation approach was taken to compare and contrast the impact of personal and situational factors on specific information behavior, including information needs, helps sought, source used, helps from sources and situational learnings. Discussion of the results will be addressed below.

On Situation and Information Seeking

In response to Dervin’s call for information researchers to look at how different factors -- contextual, situational, personal, structural, etc. – separately and together affect information behavior, this dissertation, taking a person-in-situation approach, chose to zero in on two types of factors, personal (academic rank) and situational (focus of situation), to compare and contrast how they each and in intersection associated with
information seeking and use behaviors. Different from a statistical analysis approach, the qualitative analysis focused on finding patterns and themes of their information behavior in contingency.

Academic rank made no difference in terms of information needs informants had and what helps they got from sources. Regardless of academic rank, informants all reported exactly the same top five information needs and helps from sources in the same order, suggesting that faculty, graduate and undergraduate students had the same most asked questions and got the same types of most reported helps from sources across situations. While sharing the most asked questions and helps, they got other types of information needs and helps too, showing the difficulty to identify information needs and helps just based on informants’ level of education.

Academic rank made a little difference in terms of what sources informants used and what they learned from the situation. While the three most used sources were the same for the three groups, they did differ in other sources used. Comparatively, more faculty members used health professionals than students. While faculty and graduate students turned to more library resource, undergraduate students tended to go to their fellow students and colleagues for help. As for situational learnings, all informants shared the four most reported learnings. For the fifth one, faculty understood how certain institution worked while both graduate and undergraduate students learned specific skills.

The strongest relationship found seemed to be between academic rank and what helps information sought in the situation and what different source combination they used. Except for getting control as the most needed help shared by all informants, faculty informants needed help to get a resolution of the problem and make decisions; graduate
students needed more social support and help to get connected to sources or information; undergraduate students preferred to get help that can make things easier for them and to learn strategies to solve the problem. Comparing their source combination patterns, common to all three groups was the mix of self, interpersonal and Internet search engine. However, there was difference in that using all six categories of sources was only a clear pattern for faculty, indicating that higher level of education related to more types of source used. Another difference was that as academic rank went up, the percentage of informants who used unique source combination went down. The more diversified and unique source combination by undergraduate students reflected a huge variability in their access to and preference of sources.

The analysis on ten different focus of situation presented a thematic picture of each of them on how they related to different information behaviors. If comparing these information behaviors across the situations, we can see that except for source combination and situational learnings, focus of situation did have a better association with information needs and helps sought in the situation. Though informants in all health situations with a different focus had multiple information needs, the different focus did point to different information needs, such as learning coping strategies while facing the demand of illness or knowing healthy behaviors when trying to maintain healthy. Similarly, people in different situations also tended to ask for different helps, such as getting control and getting direction when searching treatment options while getting connected when looking for health insurance.

How focus of situation related to source use and helps from sources presented a mixed picture. Across the majority of situations, the most used three sources were almost
the same, self, family and friends and Internet search engines, but the order of them did change depending on different situations. In addition to them, informants in different situations tended to use other different types of sources. For example, informants looking for diagnosis and treatment tended to consult health professionals while informants maintaining health went to mass media more for input. Similarly, with the helps from sources, while getting connected and getting support were present in seven out of the ten situations, different focuses varied in other types of helps input offered to informants.

As for source combination and situational learnings, while some situations were related to certain source combination patterns and situational learnings, others did not produce any pattern at all. For about half of the situations, informants tended to use a certain mix of sources and learned something specifically; for the other half situations, no pattern was observed. This suggested the complex of relationship between situation and source combination and situational learnings. The reason behind this still needs further research.

The picture of the interaction of academic rank and focus of situation turned out even more complex. Due to the unequal number of informants from each academic rank falling into a particular situation, only four types of situation were eligible for a comparison. Analysis showed that the interaction effect related to different information behaviors for different types of situations. Because of the multiple of numbers sources used and helps from sources reported by each informant, the patterns found were not simple and with some overlapping across academic rank. Adding to the complexity was the very small number of informants in some cells, which made it impossible to find any pattern at all.
In summary, academic rank and situation associated with health information seeking and use in different ways. While academic rank had no or little relationship with information needs, source used and helps from sources, it related better to helps sought and source combination. Focus of situation in general showed a better correlation with information needs, helps sought and helps from sources, its relationship with source combination and situational learnings, however, was difficult to explain. Moreover, the interaction of these two factors identified a more complex picture due to the unequal numbers of situations for comparison.

As few qualitative researches has been done to study the effects of personal and situational factors on health information behavior, no study was present to make direction comparison with the results here. However, a same approach has been taken by Dervin (2006) to analyze the whole data set from which this dissertation was drawn, presenting a case for comparison. Even though her systematic analysis used statistical tools and the situational factor was conceptualized differently, it is still useful to look at the general themes of results as they both looked at academic rank and certain attribute of the situation. The qualitative analysis suggested that situation in general had a better association with information behavior than academic rank, consistent to the results of quantitative analysis that situation was the best predictor across information seeking and use measures by predicting on average 73.3% out of the 236 measures. Likewise, academic rank related better to helps sought, but not to information needs and helps from sources. When intersecting with situation, academic rank associated with information needs for only two situations but with helps from sources for all four situations under comparison. Differences also existed between the two analyses. While Dervin’s analysis
did not find difference in the number of sources used across academic rank for all types of situations, in this dissertation undergraduate students were found to use the least number of sources on average in a health situation, followed by graduate students and faculty. Another difference was in the situational learnings in that 33.4% of the informants-in-situations reported learning about their own self in the big study, while very few informants reported this in this dissertation, which might be due to the different conceptualization of “self” in the two studies.

In addition to the Sense-Making Information Confluence project, previous Sense-Making studies have also used statistical tools to compare other personal characteristics, such as race, and situational factors, such as situation movement state or openness of communication, as predictors of information behavior (e.g. Atwood, 1980; Cardillo, 1990; Dervin & Shields, 1999). They produced a consistent finding that time-space bounded situation proved to be a better predictor of information behavior than across-space noun-oriented factors. The convergence of these studies showed the importance of taking into account multiple factors in predicting information behavior.
CHAPTER 6

CONCLUSIONS AND IMPLICATIONS

Conclusions in Summary

Drawing on the conceptual and methodological developments from the LIS discourse community, this dissertation aims to bring qualitative approaches applied to LIS field to bear on health communication that has attended only to source and channel use. By looking at information seeking and use from a process perspective, this dissertation not only gives attention to all information behaviors embedded in the process of information seeking and use, but also attends to the complexity of the process by comparing two different “predictor” factors in terms of how they each or together related to information seeking and use activities in various troublesome health situations informants faced in real life.

Two different approaches to inductive theorizing were applied to analyze the data. One is Schatzman’s grounded theory dimensional analysis and the other is Dervin’s Sense-Making Methodology guided situational contingency analysis. While Schatzman’s grounded theory dimensional analysis comes out of the discourse community that first introduced a set of qualitative theory-development procedures that they explicitly called Grounded Theory, in contrast, Dervin's Sense-Making Methodology arises from a
different research tradition anchored in the work of Richard F. Carter and his call for a turn to studying internal and external communication (in Dervin's case called sense-making and sense-unmaking) in situated moments of movement through time-space. The empirical portraits that emerged were different in important respects and complementary in others.

Through Schatzman’s grounded theory dimensional analysis, a model of information seeking and use was developed which included a set of key categories and the relationships among them. This model showed health information seeking and use as a process with four dimensions – context, conditions, actions/behaviors and outcomes. While multiple contextual factors have been identified to influence information behavior, informants engaged in three major actions – entering the situation, identifying information needs and getting input from sources. One key intervening condition was information barriers of two kinds that either blocked informants’ access to certain source or prevented sources from offering maximum helps to them. As consequences of information actions were helps and hindrances from sources of input as well as situational learnings out of their whole experience of getting through the situation.

Specific to the key categories of the four dimensions were the following major findings of this approach to analysis.

When just encountering a health situation, informants perceived how they got involved in the situation differently, largely attributing it to two factors working alone or together – their own free choice from inside and natural or uncontrollable factors from outside – resulting in four different perceptions of the origin of situation.
Like previous studies, informants reported having a variety of information needs to be fulfilled. Some of them were disease-related needs concerning the diagnosis, treatment and recovery of a disease; others were needs related to other aspects of illness, such as psychological impact and financial concerns. The two types of needs appeared equally important to informants. This confirmed the finding that informant needs in health situations have extended well beyond the biology of disease into the territories of whole illness experience.

When using sources, informants on average turned to six sources. While all informants across academic rank used different kinds of sources or channels, they did differ in the average number of sources used, with faculty members using the most number of sources and undergraduate students the least. Consistent with other studies, a type of interpersonal sources, family and friends ranked as the most used source of input except for the self as a source by default. The efficiency and flexibility of Internet search engine made it a key source for most informants. In terms of source combination, faculty and students were different in their most preferred source combination. Besides, no single undergraduate student used all six categories of sources as faculty or graduate students did. When most faculty informants used one of five source combination patterns, undergraduate students demonstrated the greatest diversity and variability in source use preference.

The input from sources helped informants in a variety of ways, mostly in helping them move along the journey. Though all sources helped informants in all possible ways, some of them tended to tie to particular types of helps, such as family and friends giving emotional support, students and colleagues helping to make things easier, reference
books offering summary or overview, and Internet search engine and catalogue connecting to information and other sources. However, what source matched what type of help did not seem important to informants. What counted the most to them was in what way a source helped them and the degree of helpfulness as perceived by them.

Situation was found to constrain information seeking and use by banning informants’ access to sources and compromising ultimate source helpfulness. Some informants showed realistic acceptance of the uniqueness, unpredictability and inresolvability of health situations that offered partial justification for their contentment with what was available and their willingness to the satisficing of information. Informants used different criteria to judge the relevance of a source, a channel, information content and the situation. While different kinds of sources shared a small number of evaluation criteria, channel, information content and situation all had a distinct set of evaluation criteria, suggesting the usefulness in describing a more nuanced picture of source evaluation in relation to different entities than just collapsing them all into something called “information”.

When reflecting on the situations, informants reported learning different things through their experience, from gaining certain medical knowledge, changing perceptions of other people, to contemplating the meaning of life and understanding more about the self. Surprisingly, few informants reported understanding more about self as their special learning. An overriding emphasis of informants was that what they learned from the situation was future-oriented in that it would help them to deal with similar and provide valuable lessons for other life situations in the future.
Compared with Schatzman’s grounded theory dimensional analysis, Dervin’s Sense-Making Methodology guided situational contingency analysis revealed a quite complex picture. Situation in general associated better with information needs, helps sought and helps from sources, but not with source combination and situational learnings. While academic rank had no or little relationship with information needs, situational learnings, source used and helps from sources, it related better to helps sought and source combination. When interacting with situation, academic rank related to information needs and helps from sources within some types of situations, but not others. The results spoke to the difficulty and complexity in predicting health information behavior with multiple predicting factors.

Implications for Research

This dissertation looked at health information seeking as a process. Unlike previous research that took apart the whole experience of information seeking and use to only concentrate on information need or source or channel use, the results of this dissertation extrapolated the importance of studying the totality of information seeking and use in all key dimensions and the relationships among them. A holistic perspective proved useful to identify the embeddedness of various dimensions of information seeking and use. An idea for future research is to combine the disease journey approach with Kaulthau’s Information Search Process model to study information process in health situations. For example, researchers could look at information behavior, including information needs, helps sought, sources used, and emotional assessments or reactions at different stage of an illness experience for an informant. For methodological concern, the
data could be collected by using Sense-Making’s micro-moment in-depth interview technique.

By taking a specific approach to context and situation, this dissertation took a detailed look at the situatedness of information seeking and use in health situations that were defined by intersecting contextual factors at different levels. This showed that to distinguish context from situation in research is also necessary as they could affect information behavior differently. More future research could explore the potentials of other theoretical conceptions of context in studying information behavior. Johnson’s fields vs. pathway approach provided a new possibility. Compared with the traditional way of ask informants to list all the sources or channels they used, finding out the route of source or channel used could present a more dynamic picture of information seeking and use in health situations. Upon that, it could be combined with a situational approach to see if different situations lead to different fields or pathways of source selection and use.

Another useful finding of this dissertation is that a person-in-situation approach turned out useful to tease out the different effects of personal vs. situational factors on information seeking and use. This suggested necessity to look at other important situational factors, pitted against other personal factors, in affecting information seeking and use to further tap the validity and usefulness of this approach. For example, given the different natures of disease and privacy concern, people may perceive situations differently in terms of its clarity or the degree of openness of communication with health professionals. These two could be a new set of situational factors to be compared with,
for example, race, gender or level of education, to see how they affect health information seeking and use.

Similar as the statistical analysis on the whole data set of the Sense-Making the Information Confluence project (Dervin et al, 2006), this qualitative dissertation revealed the complexity of the data and the interaction of academic rank and situation, echoing the findings of Sense-Making statistical analysis. Affecting information behavior in different ways, neither of the two "predictor" factors seemed to make a big difference in explaining source use as an essential aspect of information behavior. The insufficiency posed a challenge for researchers to expand their terrain to investigate more critical factors, such as structural and cultural, with a more integral approach than the person-in-situation perspective, of their roles in accounting for information behavior in response to what Dervin called an “over-riding mandate for user research in the next decade” (Dervin, 2006, p. 80).

Methodologically, the narrative perspective, which recognizes the patient's account as the best way to understand individual experience, was used to identify a diversified and complex picture of people’s need for information and information behavior with the help of Sense-Making in-depth interviews. Two different approaches to inductive theorizing were applied in this dissertation. While both of them attended to information seeking and use from a process perspective with grounded inductive analysis, the ultimate goal of Schatzman’s grounded theory dimensional analysis was to develop a theory or model that aimed to explain informant information behavior as a process when they are engaged in a health situation of some sort. Therefore, the model explained information behavior at a general level. In comparison, Dervin’s Sense-Making
Methodology guided situational contingency analysis looked at the contingencies of information behaviors at specific moments of the situation, thus it displayed a more situated picture of information seeking and use activities. In combination, they complemented each other by showing the potentials of inductive theorizing in general and different analysis approaches in particular on enlarging health communication theorizing as well as understanding situated health information seeking and use behaviors. That the key categories derived from Schatzman’s grounded theory dimensional analysis matched the key elements of Dervin’s Sense-Making metaphor provided more evidence for its usefulness as a deductive model for health information research and called for more qualitative research to complement and add insights to the main-stream quantitative studies.

Implications for Practice

Results of this dissertation could be used to help with health information system design. Unlike the online health information environment where information is usually organized by specific disease and its diagnosis and treatment, health information could be compiled from different sources and organized based on different situations so that the delivery of information can be targeted to all people across diseases but facing similar situations. This could be a more efficient way to get what they need for some health information seekers who focus on a certain aspect of their health problems.

The model of situated health information seeking and use could also help physician-patient interaction to certain extent. As health professionals are still a source frequently consulted by informants and commonly complained as not helpful enough for limited consultation time with patients and their family, understanding of the model could
give them some insights on information needs and helps sought of patients and their family in different health situations, so that they could make a better use of their limited time to offer relevant information and any helps they are capable of to improve the efficiency and helpfulness of doctor-patient interaction.

Lastly, as the analysis showed that informants in this dissertation used academic libraries a lot to access medical journals, books and reference books and considered them in general as objective and reliable sources. Thus, for people working at these libraries, using a situational approach in reference interview to find out patrons’ specific needs and helps sought in different situations could give them a better way than just grouping them by academic rank to really understand patrons’ information seeking and use experience from their perspective and subsequently recommend the most relevant sources to satisfy their needs.
APPENDIX A

PHONE INTERVIEW QUESTIONNAIRE


<table>
<thead>
<tr>
<th>INTERVIEW CONTACT RECORD:</th>
<th>APPOINTMENT RECORD</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAY</td>
<td>DATE</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RESULT CODES:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Interview completed</td>
</tr>
<tr>
<td>2</td>
<td>No answer - use this code if no answer for 30 minutes after interview appointment; then proceed to *</td>
</tr>
<tr>
<td>3</td>
<td>Busy - use this code if busy for 30 minutes after interview time; then proceed to *</td>
</tr>
<tr>
<td>4</td>
<td>Disconnected - return incomplete interview to field supervisor</td>
</tr>
<tr>
<td>5</td>
<td>Three failed appointments - return incomplete interview to field supervisor</td>
</tr>
<tr>
<td>6</td>
<td>Two failed appointments - return incomplete interview to field supervisor</td>
</tr>
<tr>
<td>*</td>
<td>Email informant again per contact instructions to establish another phone appointment</td>
</tr>
</tbody>
</table>
INTRODUCTION:
Hello, ___________________________ SAY INFORMANT"S REAL NAME. DO NOT WRITE IT ON THIS PAGE.

I'm _______________________ at Ohio State University, the person assigned to interview you for the study of how college and university faculty and students use sources of input in facing situations both in their college/university lives and their lives outside educational settings. As my supervisor explained, I will be asking you to tell me more about the situations you described in your online interview.

Thank you so much for agreeing to help us. During this interview, I will not refer to your real name and I want to assure you that your alias name____________________________ REPEAT ALIAS is the only name attached to your final interview. Your real name and its connection to your alias will be kept in a separate locked file.

I will be using a speaker phone and a tape recorder so you can talk as fast as you want to in telling me about your situations. When I turn the completed interview and its transcription in to my supervisor, she will erase the tape. In short, what you say here will be kept entirely anonymous.

As my field supervisor explained in emails to you, we have your permission to interview you on file -- also in the locked separate cabinet. As soon as this interview is complete, your payment of $40 will be processed and mailed to you. If you have any questions or concerns, please call the project office at 614-202-2657 or 614-292-3192, or email to imlsproject@osu.edu.

Are we ready to begin? I am switching now to speaker phone and turning on the tape recorder. What we are going to do is go through each of the situations you described in the online survey, starting with......
SITUATION ANALYSIS FOR SITUATION 1:
A troublesome situation you faced in the past six months that involved your university/college life in some way.

1. SITUATION DESCRIPTION: In your Online Survey, you described a troublesome situation you faced in the past six months in your college/university life in these words:

   INFORMANT'S ONLINE DESCRIPTION OF SITUATION TO BE STAPLED HERE:

Would you like to add anything to your description -- about what happened or what you were dealing with?
WRITE BRIEF NOTES TO HELP WITH INTERVIEWING RESPONSE ON TAPE

2a. IMPOSED: Thinking back on this situation, do you see it as one that.....
   _____ just happened
   _____ you voluntarily journeyed into
   _____ was imposed on you by others
   _____ or a combination of the above

2b. IMPOSED REASON: What leads you to describe the situation this way?
   PROBE: ANYTHING ELSE? RESPONSE ON TAPE

3. SITUATION ATTRIBUTES: Looking back at the situation SITUATION REMINDER, we'd like you to evaluate it on a series of judgments.

<table>
<thead>
<tr>
<th>Would you say....</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 INSERT CATEGORY or 01 INSERT CATEGORY or somewhere in between?</td>
<td></td>
</tr>
</tbody>
</table>

3a. CHALLENGING: How challenging was the situation? 10 = very challenging 01 = not challenging at all

3b. IMPORTANCE: How important was the situation to you? 10 = very important 01 = not important at all
### 3c. CONFUSING: How confusing was the situation to you?

- 10 = very confusing
- 01 = not confusing at all

### 3d. EMOTIONAL: How emotional was the situation for you?

- 10 = very emotional
- 01 = not emotional at all

### 3e. PRIOR EXPERIENCE: How much prior experience did you have dealing with similar situations?

- 10 = lots of prior experience
- 01 = no experience at all

### 3f. BARRIERS: To what extent would you say there were barriers standing in your way -- these could be people, things, or just circumstances?

- 10 = lots of barriers
- 01 = no barrier at all

### 3i. CONTRADICTORY INPUTS: To what extent would you say you got contradictory inputs in this situation?

- 10 = lots of contradictions
- 01 = no contradictions at all

### 3h. HELPED: To what extent did you see yourself as being helped in this situation?

- 10 = got lots of help
- 01 = got no help at all

---

### 4. BIG QUESTIONS: Looking back at the situation SITUATION REMINDER, what would you say were your big questions -- the things you needed answers to, or needed to unravel, or clarify?

**WRITE BRIEF NOTES TO HELP WITH INTERVIEWING**

<table>
<thead>
<tr>
<th>4a. BIG QUESTIONS</th>
<th>4b. COMPLETENESS</th>
<th>4c. IF PARTIAL OR NONE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROBE:</strong> ANYTHING OTHERS?</td>
<td>Would you say you got... no answer at all? (0) ---&gt; partial answer (1) ---&gt; complete answer (2)</td>
<td>What prevented it from being a complete answer? <strong>PROBE:</strong> ANYTHING ELSE?</td>
</tr>
</tbody>
</table>
5. SPECIAL LEARNINGS: Would you say you learned anything special in this situation [SITUATION REMINDER]?

WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>5a. SPECIAL THINGS LEARNED:</th>
<th>5b. REASON SPECIAL: How did learning this help?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE: ANY OTHERS?</td>
<td>PROBE: HELP CHAIN</td>
</tr>
</tbody>
</table>

6. HELPS: What kind of help did you want or need in this situation [SITUATION REMINDER]? What did you want to happen?

WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>6a. KIND OF HELP:</th>
<th>6b. COMPLETENESS: Did you get this help? Would you say...</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE: ANY OTHERS?</td>
<td>none (0) --------------&gt; some (1) --------------&gt; all you wanted (2)</td>
</tr>
<tr>
<td>PROBE: HELP CHAIN</td>
<td></td>
</tr>
</tbody>
</table>

6c. IF NONE OR SOME: What explains in your mind why you couldn't get more of this help?

7. MAGIC WAND: If you could have waved a magic wand what would have been the best help you could have received in this situation [SITUATION REMINDER]?

RESPONSE ON TAPE

PROBE: ANY OTHERS? PROBE: HELP CHAIN
WAIT FOR ANSWER. IF PIE-IN-THE-SKY ANSWER, ASK:  Realistically, if you could wave that magic wand, what kind of help would you want?

8. EVALUATION OF SOURCES:  In your online survey, you told us about the sources of input you used in this situation  SITUATION REMINDER  ?  We'd like you to tell us a bit more about each of them.  I'll be reminding you of what you said in the online survey but you can change your mind here if you want.  Also, if there's a category of source -- for example, friends or books -- where you had more than one contact that you evaluated differently, it's okay for you to separate them and label them, for example, friend 1 and 2 or book 1, 2, and 3.

I'm going to go through your sources of input one at a time.  When we're done if you want to add any others you'll have a chance to do so.

WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>8a.  SOURCE OF INPUT:</th>
<th>10b.  GRADE: In the online survey, you grade this source in terms of how much it helped you on a scale from 01 meaning no help at all to 10 meaning maximum help. You gave this source NAME SOURCE a ______. How would you evaluate this subgroup now? THEN NOW</th>
<th>10c.  IF GRADED 02 to 10</th>
<th>10d.  IF GRADED 01 to 09</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFORMANT'S LIST OF SOURCES FROM ONLINE INTERVIEW TO BE LISTED BELOW WITH HELP SCALE EVALUATION</td>
<td>HOW HELPED: How did this source help you? PROBE: HELP CHAIN</td>
<td>PREVENTED MORE HELP: What about the input or source prevented you from grading this source of input as having given you SOME/MORE help? PROBE: ANYTHING ELSE?</td>
<td></td>
</tr>
</tbody>
</table>
REMEMBER TO ASK: Would you like to add any other sources of input now?

11. FINAL ASSESSMENT INPUTS: Looking back over all the sources of input that helped you and did not help you in this situation [SITUATION REMINDER ] in retrospect is there anything else you can tell us so we understand what kind of help you were seeking and why some sources gave it and others couldn't?

PROBE: ANYTHING ELSE? RESPONSE ON TAPE

12. TRUSTWORTHINESS: Sometimes in situations we get to use sources that we see as trustworthy. Sometimes those we expect to be trustworthy fail us; sometimes the opposite happens and we end up changing our minds about sources we thought might be untrustworthy. Looking back at this situation [SITUATION REMINDER ] . . .

| 12a. Were there sources you considered trustworthy that you couldn't get to? PROBE: ANY OTHERS? |
| 12b. INPUT: What was this source? |
| 12c. BARRIER: What got in the way of your using it? PROBE: ANYTHING ELSE? |
| 12d. Were there sources you thought would be trustworthy but you ended up thinking they weren't? PROBE: ANY OTHERS? |
| 12e. INPUT: What was this source? |
| 12f. REASON: What led to your negative evaluation? PROBE: ANYTHING ELSE? |
| 12g. Were there sources you expected to be untrustworthy but you ended up judging them trustworthy? PROBE: ANY OTHERS? |
| 12h. INPUT: What was this source? |
| 12i. REASON: What led to your positive evaluation? PROBE: ANYTHING ELSE? |
SITUATION ANALYSIS FOR SITUATION 2:
A situation that specifically involved research or scholarship -- e.g. writing a paper, preparing for class, writing a proposal, developing an understanding, or executing something you created.

1. SITUATION DESCRIPTION: In your Online Survey, you described situation that specifically involved research or scholarship -- e.g. writing a paper, preparing for class, writing a proposal, developing an understanding, or executing something you created -- in these words

INFORMANT'S ONLINE DESCRIPTION OF SITUATION TO BE STAPLED HERE:

Would you like to add anything to your description -- about what happened or what you were dealing with?
WRITE BRIEF NOTES TO HELP WITH INTERVIEWING RESPONSE ON TAPE

2a. IMPOSED: Thinking back on this situation, do you see it as one that.....
_____ just happened
_____ you voluntarily journeyed into
_____ was imposed on you by others
_____ or a combination of the above

2b. IMPOSED REASON: What leads you to describe the situation this way?
PROBE: ANYTHING ELSE? RESPONSE ON TAPE

3. SITUATION ATTRIBUTES: Looking back at the situation SITUATION REMINDER, we'd like you to evaluate it on a series of judgments.

<table>
<thead>
<tr>
<th>Would you say...</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 [INSERT CATEGORY] or</td>
<td></td>
</tr>
<tr>
<td>01 [INSERT CATEGORY] or</td>
<td></td>
</tr>
<tr>
<td>somewhere in between?</td>
<td></td>
</tr>
</tbody>
</table>

3a. CHALLENGING: How challenging was the situation?
10 = very challenging
01 = not challenging at all
3b. IMPORTANCE: How important was the situation to you?  
10 = very important  
01 = not important at all

3c. CONFUSING: How confusing was the situation to you?  
10 = very confusing  
01 = not confusing at all

3d. EMOTIONAL: How emotional was the situation for you?  
10 = very emotional  
01 = not emotional at all

3e. PRIOR EXPERIENCE: How much prior experience did you have dealing with similar situations?  
10 = lots of prior experience  
01 = no experience at all

3f. BARRIERS: To what extent would you say there were barriers standing in your way -- these could be people, things, or just circumstances?  
10 = lots of barriers  
01 = no barrier at all

3i. CONTRADICTORY INPUTS: To what extent would you say you got contradictory inputs in this situation?  
10 = lots of contradictions  
01 = no contradictions at all

3h. HELPED: To what extent did you see yourself as being helped in this situation?  
10 = got lots of help  
01 = got no help at all

4. BIG QUESTIONS: Looking back at the situation SITUATION REMINDER, what would you say were your big questions -- the things you needed answers to, or needed to unravel, or clarify?  
WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

4a. BIG QUESTIONS:  
PROBE:  
ANYTHING OTHERS?

4b. COMPLETENESS: Would you say you got...  
no answer at all? (0) ---------->  
partial answer (1) ----------->  
complete answer (2)

4c. IF PARTIAL OR NONE:  
What prevented it from being a complete answer?  
PROBE:  
ANYTHING ELSE?
5. SPECIAL LEARNINGS   Would you say you learned anything special in this situation SITUATION REMINDER?
WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>5a. SPECIAL THINGS LEARNED:</th>
<th>5b. REASON SPECIAL: How did learning this help?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE: ANY OTHERS?</td>
<td>PROBE: HELP CHAIN</td>
</tr>
</tbody>
</table>

6. HELPS: What kind of help did you want or need in this situation SITUATION REMINDER? What did you want to happen?
WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>6a. KIND OF HELP :</th>
<th>6b. COMPLETENESS: Did you get this help? Would you say...</th>
<th>6c. IF NONE OR SOME: What explains in your mind why you couldn't get more of this help?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE: ANY OTHERS?</td>
<td>none (0) ---------------@&gt; some (1) ---------------@&gt; all you wanted (2)</td>
<td>none (0) ---------------@&gt; some (1) ---------------@&gt; all you wanted (2)</td>
</tr>
</tbody>
</table>

7. MAGIC WAND: If you could have waved a magic wand what would have been the best help you could have received in this situation SITUATION REMINDER?
RESPONSE ON TAPE
**PROBE: ANY OTHERS?  PROBE: HELP CHAIN**

**WAIT FOR ANSWER. IF PIE-IN-THE-SKY ANSWER, ASK:** Realistically, if you could wave that magic wand, what kind of help would you want?

**8. EVALUATION OF SOURCES:** In your online survey, you told us about the sources of input you used in this situation SITUATION REMINDER? We'd like you to tell us a bit more about each of them. I'll be reminding you of what you said in the online survey but you can change your mind here if you want. Also, if there's a category of source -- for example, friends or books -- where you had more than one contact that you evaluated differently, it's okay for you to separate them and label them, for example, friend 1 and 2 or book 1, 2, and 3.

I'm going to go through your sources of input one at a time. When we're done if you want to add any others you'll have a chance to do so.  

**WRITE BRIEF NOTES TO HELP WITH INTERVIEWING**

<table>
<thead>
<tr>
<th>8a. SOURCE OF INPUT:</th>
<th>10b. GRADE: In the online survey, you grade this source in terms of how much it helped you on a scale from 01 meaning no help at all to 10 meaning maximum help, You gave this source NAME SOURCE a _____. How would you evaluate this subgroup now? THEN NOW</th>
<th>10c. IF GRADED 02 to 10 HOW HELPED: How did this source help you? PROBE: HELP CHAIN</th>
<th>10d. IF GRADED 01 to 09 PREVENTED MORE HELP: What about the input or source prevented you from grading this source of input as having given you SOME/MORE help? PROBE: ANYTHING ELSE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFORMANT'S LIST OF SOURCES FROM ONLINE INTERVIEW TO BE LISTED BELOW WITH HELP SCALE EVALUATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

258
REMEMBER TO ASK: Would you like to add any other sources of input now?

11. FINAL ASSESSMENT INPUTS: Looking back over all the sources of input that helped you and did not help you in this situation [SITUATION REMINDER], in retrospect is there anything else you can tell us so we understand what kind of help you were seeking and why some sources gave it and others couldn’t?

PROBE: ANYTHING ELSE? RESPONSE ON TAPE

12. TRUSTWORTHINESS: Sometimes in situations we get to use sources that we see as trustworthy. Sometimes those we expect to be trustworthy fail us; sometimes the opposite happens and we end up changing our minds about sources we thought might be untrustworthy. Looking back at this situation [SITUATION REMINDER]...

<table>
<thead>
<tr>
<th>12a. Were there sources you considered trustworthy that you couldn't get to? PROBE: ANY OTHERS?</th>
<th>12d. Were there sources you thought would be trustworthy but you ended up thinking they weren't? PROBE: ANY OTHERS?</th>
<th>12g. Were there sources you expected to be untrustworthy but you ended up judging them trustworthy? PROBE: ANY OTHERS?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SITUATION ANALYSIS FOR SITUATION 3:
A troublesome situation you faced in the past six months that involved your life outside the university/college in some way.

1. SITUATION DESCRIPTION: In your Online Survey, you described a troublesome situation you faced in the past six months that involved your life outside the college/university in these words:

INFORMANT'S ONLINE DESCRIPTION OF SITUATION TO BE STAPLED HERE:

Would you like to add anything to your description -- about what happened or what you were dealing with?
WRITE BRIEF NOTES TO HELP WITH INTERVIEWING RESPONSE ON TAPE

2a. IMPOSED: Thinking back on this situation, do you see it as one that.....
   _____just happened
   _____you voluntarily journeyed into
   _____was imposed on you by others
   _____or a combination of the above

2b. IMPOSED REASON: What leads you to describe the situation this way?
PROBE: ANYTHING ELSE? RESPONSE ON TAPE

3. SITUATION ATTRIBUTES: Looking back at the situation SITUATION REMINDER, we'd like you to evaluate it on a series of judgments.

<table>
<thead>
<tr>
<th>Would you say....</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 INSERT CATEGORY or</td>
<td></td>
</tr>
<tr>
<td>01 INSERT CATEGORY or somewhere in between?</td>
<td></td>
</tr>
</tbody>
</table>

3a. CHALLENGING: How challenging was the situation? 10 = very challenging 01 = not challenging at all

3b. IMPORTANCE: How important was the situation to you? 10 = very important 01 = not important at all
<table>
<thead>
<tr>
<th>3c. CONFUSING:</th>
<th>How confusing was the situation to you?</th>
<th>10 = very confusing 01 = not confusing at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>3d. EMOTIONAL:</td>
<td>How emotional was the situation for you?</td>
<td>10 = very emotional 01 = not emotional at all</td>
</tr>
<tr>
<td>3e. PRIOR EXPERIENCE:</td>
<td>How much prior experience did you have dealing with similar situations?</td>
<td>10 = lots of prior experience 01 = no experience at all</td>
</tr>
<tr>
<td>3f. BARRIERS:</td>
<td>To what extent would you say there were barriers standing in your way -- these could be people, things, or just circumstances?</td>
<td>10 = lots of barriers 01 = no barrier at all</td>
</tr>
<tr>
<td>3i. CONTRADICTORY INPUTS:</td>
<td>To what extent would you say you got contradictory inputs in this situation?</td>
<td>10 = lots of contradictions 01 = no contradictions at all</td>
</tr>
<tr>
<td>3h. HELPED:</td>
<td>To what extent did you see yourself as being helped in this situation?</td>
<td>10 = got lots of help 01 = got no help at all</td>
</tr>
</tbody>
</table>

4. BIG QUESTIONS: Looking back at the situation **SITUATION REMINDER**, what would you say were your big questions -- the things you needed answers to, or needed to unravel, or clarify?

**WRITE BRIEF NOTES TO HELP WITH INTERVIEWING**

<table>
<thead>
<tr>
<th>4a. BIG QUESTIONS:</th>
<th>4b. COMPLETENESS:</th>
<th>4c. IF PARTIAL OR NONE:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROBE:</strong> ANYTHING OTHERS?</td>
<td>Would you say you got... no answer at all? (0) ----------&gt; partial answer (1) ----------&gt; complete answer (2)</td>
<td>What prevented it from being a complete answer?</td>
</tr>
<tr>
<td><strong>PROBE:</strong> ANYTHING ELSE?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. SPECIAL LEARNINGS

Would you say you learned anything special in this situation [SITUATION REMINDER]? 
WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>5a. SPECIAL THINGS LEARNED:</th>
<th>5b. REASON SPECIAL: How did learning this help?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE: ANY OTHERS?</td>
<td>PROBE: HELP CHAIN</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. HELPS:

What kind of help did you want or need in this situation [SITUATION REMINDER]? What did you want to happen? 
WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>6a. KIND OF HELP:</th>
<th>6b. COMPLETENESS: Did you get this help? Would you say...</th>
<th>6c. IF NONE OR SOME: What explains in your mind why you couldn't get more of this help?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE: ANY OTHERS?</td>
<td>none (0) ---------------&gt; some (1) ---------------&gt; all you wanted (2)</td>
<td></td>
</tr>
<tr>
<td>PROBE: HELP CHAIN</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. MAGIC WAND:

If you could have waved a magic wand what would have been the best help you could have received in this situation [SITUATION REMINDER]?
RESPONSE ON TAPE

<table>
<thead>
<tr>
<th>PROBE: ANY OTHERS?</th>
<th>PROBE: HELP CHAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 8. EVALUATION OF SOURCES:

In your online survey, you told us about the sources of input you used in this situation. We'd like you to tell us a bit more about each of them. I'll be reminding you of what you said in the online survey but you can change your mind here if you want. Also, if there's a category of source -- for example, friends or books -- where you had more than one contact that you evaluated differently, it's okay for you to separate them and label them, for example, friend 1 and 2 or book 1, 2, and 3.

I'm going to go through your sources of input one at a time. When we're done if you want to add any others you'll have a chance to do so.

**WRITE BRIEF NOTES TO HELP WITH INTERVIEWING**

<table>
<thead>
<tr>
<th>8a. SOURCE OF INPUT:</th>
<th>10b. GRADE: In the online survey, you grade this source in terms of how much it helped you on a scale from 01 meaning no help at all to 10 meaning maximum help, You gave this source NAME SOURCE a_____. How would you evaluate this subgroup now? THEN NOW</th>
<th>10c. IF GRADED 02 to 10</th>
<th>10d. IF GRADED 01 to 09</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFORMANT'S LIST OF SOURCES FROM ONLINE INTERVIEW TO BE LISTED BELOW WITH HELP SCALE EVALUATION</td>
<td>HOW HELPED: How did this source help you? PROBE: HELP CHAIN</td>
<td>PREVENTED MORE HELP: What about the input or source prevented you from grading this source of input as having given you SOME/MORE help? PROBE: ANYTHING ELSE?</td>
<td></td>
</tr>
</tbody>
</table>
**REMEMBER TO ASK:** Would you like to add any other sources of input now?

### 11. FINAL ASSESSMENT INPUTS:

Looking back over all the sources of input that helped you and did not help you in this situation **[SITUATION REMINDER]**, in retrospect is there anything else you can tell us so we understand what kind of help you were seeking and why some sources gave it and others couldn't?

**PROBE: ANYTHING ELSE?**  
**RESPONSE ON TAPE**

### 12. TRUSTWORTHINESS:

Sometimes in situations we get to use sources that we see as trustworthy. Sometimes those we expect to be trustworthy fail us; sometimes the opposite happens and we end up changing our minds about sources we thought might be untrustworthy. Looking back at this situation **[SITUATION REMINDER]**....

<table>
<thead>
<tr>
<th>12a. Were there sources you considered trustworthy that you couldn't get to?</th>
<th>12d. Were there sources you thought would be trustworthy but you ended up thinking they weren't?</th>
<th>12g. Were there sources you expected to be untrustworthy but you ended up judging them trustworthy?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROBE: ANY OTHERS?</strong></td>
<td><strong>PROBE: ANY OTHERS?</strong></td>
<td><strong>PROBE: ANY OTHERS?</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12b. INPUT</th>
<th>12c. BARRIER: What got in the way of your using it?</th>
<th>12e. INPUT: What was this source?</th>
<th>12f. REASON: What led to your negative evaluation?</th>
<th>12h. INPUT</th>
<th>12i. REASON: What led to your positive evaluation?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What was this source?</td>
<td><strong>PROBE: ANYTHING ELSE?</strong></td>
<td></td>
<td><strong>PROBE: ANYTHING ELSE?</strong></td>
<td></td>
<td><strong>PROBE: ANYTHING ELSE?</strong></td>
</tr>
</tbody>
</table>
SITUATION ANALYSIS FOR SITUATION 4:
A situation in your university/college life where you turned for most of your input to electronic resources, such as the web or e-mail.

1. SITUATION DESCRIPTION: In your Online Survey, you described a situation in your university/college life where you turned for most of your input to electronic resources, such as the web or e-mail, in these words:

INFORMANT'S ONLINE DESCRIPTION OF SITUATION TO BE STAPLED HERE:

Would you like to add anything to your description -- about what happened or what you were dealing with?

WRITE BRIEF NOTES TO HELP WITH INTERVIEWING RESPONSE ON TAPE

2a. IMPOSED: Thinking back on this situation, do you see it as one that.....
   _____just happened
   _____you voluntarily journeyed into
   _____was imposed on you by others
   _____or a combination of the above

2b. IMPOSED REASON: What leads you to describe the situation this way?
   PROBE: ANYTHING ELSE? RESPONSE ON TAPE

3. SITUATION ATTRIBUTES: Looking back at the situation SITUATION REMINDER, we’d like you to evaluate it on a series of judgments.

<table>
<thead>
<tr>
<th>Would you say....</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 INSERT CATEGORY or 01 INSERT CATEGORY</td>
<td></td>
</tr>
<tr>
<td>somewhere in between?</td>
<td></td>
</tr>
</tbody>
</table>

3a. CHALLENGING: How challenging was the situation?

10 = very challenging
01 = not challenging at all

3b. IMPORTANCE: How important was the situation to you?

10 = very important
01 = not important at all
<table>
<thead>
<tr>
<th>3c. CONFUSING: How confusing was the situation to you?</th>
<th>10 = very confusing  01 = not confusing at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>3d. EMOTIONAL: How emotional was the situation for you?</td>
<td>10 = very emotional  01 = not emotional at all</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>3e. PRIOR EXPERIENCE: How much prior experience did you have dealing with similar situations?</td>
<td>10 = lots of prior experience  01 = no experience at all</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>3f. BARRIERS: To what extent would you say there were barriers standing in your way -- these could be people, things, or just circumstances?</td>
<td>10 = lots of barriers  01 = no barrier at all</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>3i. CONTRADICTORY INPUTS: To what extent would you say you got contradictory inputs in this situation?</td>
<td>10 = lots of contradictions  01 = no contradictions at all</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>3h. HELPED: To what extent did you see yourself as being helped in this situation?</td>
<td>10 = got lots of help  01 = got no help at all</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
</tbody>
</table>

4. BIG QUESTIONS: Looking back at the situation SITUATION REMINDER, what would you say were your big questions -- the things you needed answers to, or needed to unravel, or clarify?

WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>4a. BIG QUESTIONS :</th>
<th>4b. COMPLETENESS: Would you say you got... no answer at all? (0) --------- &gt; partial answer (1) --------- &gt; complete answer (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE:</td>
<td></td>
</tr>
<tr>
<td>ANYTHING OTHERS?</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4c. IF PARTIAL OR NONE: What prevented it from being a complete answer?</td>
<td>PROBE:</td>
</tr>
<tr>
<td></td>
<td>ANYTHING ELSE?</td>
</tr>
</tbody>
</table>
5. SPECIAL LEARNINGS

Would you say you learned anything special in this situation [SITUATION REMINDER]? 
WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>5a. SPECIAL THINGS LEARNED:</th>
<th>5b. REASON SPECIAL:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE: ANY OTHERS?</td>
<td>How did learning this help?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROBE: HELP CHAIN</th>
</tr>
</thead>
</table>

6. HELPS:

What kind of help did you want or need in this situation [SITUATION REMINDER]? What did you want to happen? 
WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>6a. KIND OF HELP:</th>
<th>6b. COMPLETENESS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE: ANY OTHERS?</td>
<td>Did you get this help?</td>
</tr>
<tr>
<td>PROBE: HELP CHAIN</td>
<td>Would you say...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>none (0)</th>
<th>some (1)</th>
<th>all you wanted (2)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PROBE: HELP CHAIN</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PROBE: HELP CHAIN</th>
</tr>
</thead>
</table>

7. MAGIC WAND:

If you could have waved a magic wand what would have been the best help you could have received in this situation [SITUATION REMINDER]? 
RESPONSE ON TAPE

| PROBE: ANY OTHERS? |
| PROBE: HELP CHAIN |

267
WAIT FOR ANSWER. IF PIE-IN-THE-SKY ANSWER, ASK: Realistically, if you could wave that magic wand, what kind of help would you want?

8. EVALUATION OF SOURCES: In your online survey, you told us about the sources of input you used in this situation. We'd like you to tell us a bit more about each of them. I'll be reminding you of what you said in the online survey but you can change your mind here if you want. Also, if there's a category of source -- for example, friends or books -- where you had more than one contact that you evaluated differently, it's okay for you to separate them and label them, for example, friend 1 and 2 or book 1, 2, and 3.

I'm going to go through your sources of input one at a time. When we're done if you want to add any others you'll have a chance to do so.

<table>
<thead>
<tr>
<th>8a. SOURCE OF INPUT:</th>
<th>10b. GRADE: In the online survey, you grade this source in terms of how much it helped you on a scale from 01 meaning no help at all to 10 meaning maximum help, You gave this source NAME SOURCE a _____. How would you evaluate this subgroup now? THEN</th>
<th>NOW</th>
<th>10c. IF GRADED 02 TO 10</th>
<th>HOW HELPED: How did this source help you?</th>
<th>PROBE: HELP CHAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFORMANT'S LIST OF SOURCES FROM ONLINE INTERVIEW TO BE LISTED BELOW WITH HELP SCALE EVALUATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PREVENTED MORE HELP: What about the input or source prevented you from grading this source of input as having given you SOME/MORE help?</td>
<td>PROBE: ANYTHING ELSE?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

268
REMEMBER TO ASK: Would you like to add any other sources of input now?

11. FINAL ASSESSMENT INPUTS: Looking back over all the sources of input that helped you and did not help you in this situation [SITUATION REMINDER], in retrospect is there anything else you can tell us so we understand what kind of help you were seeking and why some sources gave it and others couldn't?
 PROBE: ANYTHING ELSE? RESPONSE ON TAPE

12. TRUSTWORTHINESS: Sometimes in situations we get to use sources that we see as trustworthy. Sometimes those we expect to be trustworthy fail us; sometimes the opposite happens and we end up changing our minds about sources we thought might be untrustworthy. Looking back at this situation [SITUATION REMINDER]…

<table>
<thead>
<tr>
<th>12a. Were there sources you considered trustworthy that you couldn't get to?</th>
<th>12d. Were there sources you thought would be trustworthy but you ended up thinking they weren't?</th>
<th>12g. Were there sources you expected to be untrustworthy but you ended up judging them trustworthy?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE: ANY OTHERS?</td>
<td>PROBE: ANY OTHERS?</td>
<td>PROBE: ANY OTHERS?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12b. INPUT</th>
<th>12c. BARRIER</th>
<th>12e. INPUT</th>
<th>12f. REASON</th>
<th>12h. INPUT</th>
<th>12i. REASON</th>
</tr>
</thead>
<tbody>
<tr>
<td>What was this source?</td>
<td>What got in the way of your using it?</td>
<td>What was this source?</td>
<td>What led to your negative evaluation?</td>
<td>What was this source?</td>
<td>What led to your positive evaluation?</td>
</tr>
</tbody>
</table>
SITUATION ANALYSIS FOR SITUATION 5:
A situation in your life outside the university/college where you turned for most of your input to electronic resources, such as the web or e-mail.

1. SITUATION DESCRIPTION: In your Online Survey, you described a situation in your life outside the university/college where you turned for most of your input to electronic resources, such as the web or e-mail, in these words:

   INFORMANT'S ONLINE DESCRIPTION OF SITUATION TO BE STAPLED HERE:

Would you like to add anything to your description -- about what happened or what you were dealing with?

WRITE BRIEF NOTES TO HELP WITH INTERVIEWING RESPONSE ON TAPE

2a. IMPOSED: Thinking back on this situation, do you see it as one that.....
   ____ just happened
   ____ you voluntarily journeyed into
   ____ was imposed on you by others
   ____ or a combination of the above

2b. IMPOSED REASON: What leads you to describe the situation this way?

PROBE: ANYTHING ELSE? RESPONSE ON TAPE

3. SITUATION ATTRIBUTES: Looking back at the situation SITUATION REMINDER, we'd like you to evaluate it on a series of judgments.

<table>
<thead>
<tr>
<th>Would you say....</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 INSERT CATEGORY or 01 INSERT CATEGORY or somewhere in between?</td>
<td></td>
</tr>
</tbody>
</table>

3a. CHALLENGING: How challenging was the situation? 10 = very challenging 01 = not challenging at all

3b. IMPORTANCE: How important was the situation to you? 10 = very important 01 = not important at all
<table>
<thead>
<tr>
<th>Question</th>
<th>Rating Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>3c. CONFUSING: How confusing was the situation to you?</td>
<td>10 = very confusing 01 = not confusing at all</td>
</tr>
<tr>
<td>3d. EMOTIONAL: How emotional was the situation for you?</td>
<td>10 = very emotional 01 = not emotional at all</td>
</tr>
<tr>
<td>3e. PRIOR EXPERIENCE: How much prior experience did you have dealing with similar situations?</td>
<td>10 = lots of prior experience 01 = no experience at all</td>
</tr>
<tr>
<td>3f. BARRIERS: To what extent would you say there were barriers standing in your way -- these could be people, things, or just circumstances?</td>
<td>10 = lots of barriers 01 = no barrier at all</td>
</tr>
<tr>
<td>3i. CONTRADICTORY INPUTS: To what extent would you say you got contradictory inputs in this situation?</td>
<td>10 = lots of contradictions 01 = no contradictions at all</td>
</tr>
<tr>
<td>3h. HELPED: To what extent did you see yourself as being helped in this situation?</td>
<td>10 = got lots of help 01 = got no help at all</td>
</tr>
</tbody>
</table>

4. BIG QUESTIONS: Looking back at the situation **SITUATION REMINDER**, what would you say were your big questions -- the things you needed answers to, or needed to unravel, or clarify?

**WRITE BRIEF NOTES TO HELP WITH INTERVIEWING**

<table>
<thead>
<tr>
<th>Question</th>
<th>Rating Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>4a. BIG QUESTIONS: PROBE: ANYTHING OTHERS?</td>
<td></td>
</tr>
<tr>
<td>4b. COMPLETENESS: Would you say you got...</td>
<td></td>
</tr>
<tr>
<td>no answer at all? (0) ----------&gt; partial answer (1) ----------&gt; complete answer (2)</td>
<td></td>
</tr>
<tr>
<td>4c. IF PARTIAL OR NONE: PROBE: ANYTHING ELSE?</td>
<td></td>
</tr>
</tbody>
</table>
5. SPECIAL LEARNINGS
Would you say you learned anything special in this situation SITUATION REMINDER?
WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>5a. SPECIAL THINGS LEARNED:</th>
<th>5b. REASON SPECIAL:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE: ANY OTHERS?</td>
<td>How did learning this help?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROBE: HELP CHAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

6. HELPS:
What kind of help did you want or need in this situation SITUATION REMINDER? What did you want to happen?
WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>6a. KIND OF HELP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE: ANY OTHERS?</td>
</tr>
<tr>
<td>PROBE: HELP CHAIN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6b. COMPLETENESS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you get this help? Would you say...</td>
</tr>
<tr>
<td>none (0)...............</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6c. IF NONE OR SOME:</th>
</tr>
</thead>
<tbody>
<tr>
<td>What explains in your mind why you couldn't get more of this help?</td>
</tr>
</tbody>
</table>

7. MAGIC WAND:
If you could have waved a magic wand what would have been the best help you could have received in this situation SITUATION REMINDER?
RESPONSE ON TAPE

<table>
<thead>
<tr>
<th>PROBE: ANY OTHERS?</th>
<th>PROBE: HELP CHAIN</th>
</tr>
</thead>
</table>
WAIT FOR ANSWER. IF PIE-IN-THE-SKY ANSWER, ASK: Realistically, if you could wave that magic wand, what kind of help would you want?

8. EVALUATION OF SOURCES: In your online survey, you told us about the sources of input you used in this situation. We'd like you to tell us a bit more about each of them. I'll be reminding you of what you said in the online survey but you can change your mind here if you want. Also, if there's a category of source -- for example, friends or books -- where you had more than one contact that you evaluated differently, it's okay for you to separate them and label them, for example, friend 1 and 2 or book 1, 2, and 3.

I'm going to go through your sources of input one at a time. When we're done if you want to add any others you'll have a chance to do so.

WRITE BRIEF NOTES TO HELP WITH INTERVIEWING

<table>
<thead>
<tr>
<th>8a. SOURCE OF INPUT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFORMANT'S LIST OF SOURCES FROM ONLINE INTERVIEW TO BE LISTED BELOW WITH HELP SCALE EVALUATION</td>
</tr>
</tbody>
</table>

| 10b. GRADE: In the online survey, you grade this source in terms of how much it helped you on a scale from 01 meaning no help at all to 10 meaning maximum help. You gave this source NAME SOURCE a _____. |
| 10c. IF GRADED 02 to 10 |
| How did this source help you? |
| PROBE: HELP CHAIN |

| 10d. IF GRADED 01 to 09 |
| PREVENTED MORE HELP: What about the input or source prevented you from grading this source of input as having given you SOME/MORE help? |
| PROBE: ANYTHING ELSE? |

REMEMBER TO ASK: Would you like to add any other sources of input now?
11. FINAL ASSESSMENT INPUTS: Looking back over all the sources of input that helped you and did not help you in this situation [SITUATION REMINDER], in retrospect is there anything else you can tell us so we understand what kind of help you were seeking and why some sources gave it and others couldn't?

PROBE: ANYTHING ELSE? RESPONSE ON TAPE

12. TRUSTWORTHINESS: Sometimes in situations we get to use sources that we see as trustworthy. Sometimes those we expect to be trustworthy fail us; sometimes the opposite happens and we end up changing our minds about sources we thought might be untrustworthy. Looking back at this situation [SITUATION REMINDER]....

<table>
<thead>
<tr>
<th>12a. Were there sources you considered trustworthy that you couldn't get to?</th>
<th>12d. Were there sources you thought would be trustworthy but you ended up thinking they weren't?</th>
<th>12g. Were there sources you expected to be untrustworthy but you ended up judging them trustworthy?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBE: ANY OTHERS?</td>
<td>PROBE: ANY OTHERS?</td>
<td>PROBE: ANY OTHERS?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12b. INPUT</th>
<th>12c. BARRIER</th>
<th>12e. INPUT</th>
<th>12f. REASON</th>
<th>12h. INPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>What was this source?</td>
<td>What got in the way of your using it?</td>
<td>What was this source?</td>
<td>What led to your negative evaluation?</td>
<td>What was this source?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12i. REASON</th>
<th>12g. INPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>What led to your positive evaluation?</td>
<td>What was this source?</td>
</tr>
</tbody>
</table>

PROBE: ANYTHING ELSE?

CLOSING
Thank you very much for helping us by answering our questions. If you have any questions or comments, please call the project office at 614-292-3657 or 614-292-3192, or email imlsproject@osu.edu. Also you can write to that email to arrange for the payment of the $40 for your participation in our project.
APPENDIX B

SAMPLE HEALTH SITUATION INTERVIEW

This questionnaire was used with permission from: Dervin, B., Reinhard, C.D., Song, M. & Reed, S.J. (2006). Interviewing. In Dervin, B., Reinhard, C.D., Kerr, Z.Y., Song, M. & Shen, F.C. (Eds.) Sense-making the information confluence: The whys and hows of college and university user satisficing of information needs. Phase II: Sense-making online survey and phone interview study. Report on National Leadership Grant LG-02-03-0062-03 to Institute of Museum and Library Services, Washington, D.C. Columbus, Ohio: School of Communication, Ohio State University. Other interview examples are also available at:
http://imlsproject.comm.ohio-state.edu/imls_reports/PHASE_II/PH_II_CH_III.pdf

INFORMANT ID #: 055
INFORMANT ALIAS: Respondent 055 @
DATE OF INTERVIEW (e.g. 0305 for March 5) 0618
TIME INTERVIEW TOOK IN MINUTES: 76
WORD COUNT: 8516

SITUATION #3: Troublesome situation in life outside university/college
1a. SITUATION DESCRIPTION FROM ONLINE SURVEY: For about four months, I was having some health problems that were interfering with my ability to do much of anything. The hardest part about this was that the doctor’s could not find out what was wrong with me. I was going to the doctor and/or hospital once a week or every other week for tests, etc. I was sent to specialists and then sent back to my family doctor because the tests would come back negative. I continued to experience health problems throughout this time, and it was troublesome because I did not know why I was experiencing the health problems.
1b. SITUATION DESCRIPTION: ADDED BY PHONE: No. @
2a. IMPOSED: Just happened.
2b. REASON IMPOSED: Yeah I can’t looking back there was nothing now that I know what the problem was there was nothing I could have done to really prevent it from happening and it is just one of those things that happens in life.
3. SITUATION ATTRIBUTES: EVALUATIONS ON 01-10 SCALE
3a. CHALLENGING: I would say 10.
3b. IMPORTANCE: Definitely a 10
3c. CONFUSING: 10
3d. EMOTIONAL: I would say probably an 8.
3e. PRIOR EXPERIENCE: 1
3f. BARRIERS: 8
3i. CONTRADICTORY INPUTS: 9
3h. HELPED: 7
4. BIG QUESTION # _1_ OF _2_ (3 max):
4a. THE QUESTION: I had one big question, well two big questions. What is wrong with me and
4b. COMPLETENESS OF ANSWER: Partial
4c. WHAT PREVENTED COMPLETE ANSWER: Well I finally got a diagnosis however it wasn’t a complete diagnosis in the sense I still don’t really know why, I actually have allergies and it might sound kind of small because I always thought allergies weren’t a big deal but my allergies are pretty severe and that was what was causing all the symptoms and physical problems that I was having and I would have never guessed what it was but still the question in the air is what is the specific allergy. We still don’t know that. We are still running tests to try and determine that and in the meantime I am just on medication that is supposed to help with allergies but yeah. That is why it is partial .
4. BIG QUESTION # _2_ OF _2_ (3 max):
4a. THE QUESTION: What can I do about it
4b. COMPLETENESS OF ANSWER: I would also say partial
4c. WHAT PREVENTED COMPLETE ANSWER: because my family doctor he is fine with giving me this medication and sending me on my way but for me that is only partial answer because a complete answer would be how long do I have to take the medication and you know for what period of time, you know do I have to take this for the rest of my life year round or do I have to take this the rest of my life during certain months of the year or whatever so I really never got a complete answer and I kind of got blown off by the family doctor which is why I am going to an allergist now.
5. SPECIAL LEARNINGS # _1_ OF _1_ (3 max):
5a. THE LEARNING: Well I don’t know how special it is but I would say that one thing I learned because I never experienced anything like this before is you know it is pretty important to pinpoint what the problem is because once you do you can go to a specialist that really knows a lot about that particular physical problem. Family doctors are so general they don’t really have specialized knowledge and they are trained simply to put a band aid on the problem and so I think in my mind at least the specialists are the ones that really can do a much more in depth job of treating you but the big problem is you have to find out what is wrong first and that usually involves going to a general family doctor in the beginning.
5b. REASON SPECIAL: Well I think it only helped me, it helped me from the perspective of now that I have been through something like this I will know better how to deal with it in the future and I think I will probably know what kind of questions to be asking my doctor through this process. That was probably a challenge at times. I didn’t always know you know what I should be asking of my doctor and what I should be expecting and I think I have a better idea of that now.

6. HELP # _1__ OF _2__ (3 max):
6a. THE HELP SOUGHT: The help I wanted was just to get, to find out what was wrong
6b. COMPLETENESS OF GETTING: I would say some.
6c. WHAT PREVENTED GETTING COMPLETE: I think I’ve already alluded to this but the family doctor has very general knowledge about physical problems so I think he could give me some of the answers, I finally pinpointed that it was allergies but his approach was kind of a hit and miss approach, which was why it took four months to figure out what was wrong with me so yeah, does that answer your question? I’ve had experience like this, doing this kind of thing as a grad student so and as a researcher myself so I am fully sympathetic.

6. HELP # _2__ OF _2__ (3 max):
6a. THE HELP SOUGHT: and what I could do. I mean my two big questions to get answers to those two big questions. That is really what I wanted.
6b. COMPLETENESS OF GETTING: I would say some because
6c. WHAT PREVENTED GETTING COMPLETE: I think taking a medication is a partial answer to that. It does help to alleviate the symptoms that I was experiencing for so long that were so detrimental to my life and my lifestyle but again it, how long do I have to take this medication I don’t know and I sort of another question that emerged at the point that you know I got this partial answer was the idea of well are there other ways of treating this? Do I have to take medication or is there another way of treating it? And I still don’t, I don’t have the answer to that and that is why I am pursuing a specialist.

7a. MAGIC WAND: The best help would have been if the doctor had been able to diagnosis me you know within a couple of weeks. I mean four months was kind of a long, long time to have to experience all of things and when you are very busy faculty member at a university and it is your first year you know you are facing all sorts of challenges in the classroom like the ones we’ve already discussed today.
7b. REALISTIC MAGIC WAND: NA

8a. OWN OBSERVATIONS, THINKING, REFLECTION # _1__ OF __1__ (2 max):
10b. GRADE THEN: 6
10b. GRADE NOW: The same
10c. HOW HELPED: Well obviously it was important for me to think about my symptoms and be able to describe them in as much detail as possible. To describe when I would experience those, how often and all those types of things so I think my thinking was helpful in that that was how I was able to you know recall details and take notes, take mental notes what I was experiencing so I would be able to describe to the doctor.
10d. **WHAT PREVENTED MORE HELP:** Simply because you know I don’t have a medical degree. I was trained in communication so I felt somewhat awkward at times trying to be my own medical expert because I wasn’t getting help I needed from the doctors and I was just going on and on and on in the beginning not knowing what was wrong so yeah I just feel very adequate to the challenge.

@  

8a. **FAMILY, FRIENDS, OR NEIGHBORS #_1_ OF _1_ (2 max):**
10b. **GRADE THEN:** 6
10b. **GRADE NOW:** 6 The same
10c. **HOW HELPED:** You know anyone who has been ill before and doesn’t know what is wrong with them would probably experience something similar but everyone had a different idea of what was wrong with me and it didn’t seem to matter who it was friends or family members they always had, “OOO, well maybe you have this or maybe you have this,” you know maybe it was helpful to a certain degree because I could do research about those specific ailments and try to see if my symptoms matched those at all so it helpful so that is why I gave it a 6 but
10d. **WHAT PREVENTED MORE HELP:** yeah basically because they are not medical experts either and they are just saying things on their own from their own experience or from what they heard you know and everything and it is not always extremely reliable so that is why I would give it a 6.

@  

8a. **STUDENTS OR CLASSMATES #_1_ OF _1_ (2 max):**
10b. **GRADE THEN:** 6
10b. **GRADE NOW:** Yeah, I would evaluate them the same as well
10c. **HOW HELPED:** because they were very similar in the, to the family and friends because they also either had personally experienced or knew people who had gone through things and that reminded them of something I was going through so they would be like “well I have a friend who had this” or “When I was 16 I went through this” so you know they would kind of offer up more possible diagnosis for what I had so you know it was helpful to the extent it gave me something to look up and research
10d. **WHAT PREVENTED MORE HELP:** but not ultimately helpful because no one pointed me to the thing it really was.

@  

8a. **CO-WORKERS OR COLLEAGUES #_1_ OF _1_ (2 max):**
10b. **GRADE THEN:** 5
10b. **GRADE NOW:** 5 The same.
10c. **HOW HELPED:** I think it was, they were even a little less helpful in the sense that they a number of them again provided their suggestions for what could possibly be wrong. but
10d. **WHAT PREVENTED MORE HELP:** In many cases they gave advice that was probably not the best advice and so yeah that is why I rated it a 5.

@  

8a. **PROFESSORS, ED ADVISORS, TEACHERS, OR MENTORS #_1___ OF ___1_ (2 max):**
10b. **GRADE THEN:** 7
10b. GRADE NOW: 7
10c. HOW HELPED: Well I picked professionals to include doctors and I felt like obviously without the doctors, my family doctor and then the specialist that I was to see I wouldn’t have any answers, any complete answers about ultimately what the diagnosis was and that was why I gave them a 7
10d. WHAT PREVENTED MORE HELP: but they didn’t get higher than that because first of all it took four months and then second I never got complete answers you know for what is causing the allergies and how long to I have to take this medication then. Those were some questions in my mind now even then three months down the road even after being diagnosed.

@  
8a. REFERENCE BOOKS #___1_ OF __1__ (2 max):
10b. GRADE THEN: 8
10b. GRADE NOW: Yeah I would say the same.
10c. HOW HELPED: I happened to have a thousand or two thousand page medical journal and it was a really good piece of mind for me one day I just sat down one day and started reading through it and obviously not single thing word for word but I started reading through it to look for things that might match my symptoms and everything and I think that it was piece of mind because I saw so many of the debilitatng diseases that I was worry I might have you know my symptoms just weren’t matching up to those things and so I think it gave me peace of mind and was very helpful in at least ruling out a lot of things.
10d. WHAT PREVENTED MORE HELP: But it obviously couldn’t pinpoint what the actual problem was which is why I gave it an 8.

@  
8a. INTERNET SEARCH ENGINES #___1_ OF ___1_ (2 max):
10b. GRADE THEN: 7
10b. GRADE NOW: 7.
10c. HOW HELPED: Similar to the medical journals. When family members, friends or students would come to me and say, “Oh, have you ever thought you might have this,” you know I would take a mental note of that and then you know use I would use my WebMD or some type of search engine to look up articles or information about whatever it was whether it was mono or whatever it was they suggested I might have.
10d. WHAT PREVENTED MORE HELP: It was helpful, I wouldn’t say completely helpful because at times I would get contradictory information on the internet but it was helpful.

@  
11. FINAL ASSESSMENT: NA

@  
12d. TRUSTWORTHY SOURCES ----> UNTRUSTWORTHY #___1_ OF _1__ (2 max): Yes.
12e. WHO/WHAT: My family doctor
12f. WHAT LED TO NEGATIVE EVAL: Because I didn’t feel like he really knew what he was doing and in trying to diagnosis me like I said the hit or miss kind of thing and with the allergies he didn’t do any special tests to find out if I was allergic to something.
He just said, “Here, let me give you a shot of Cortisone. Take this allergy medication and see if it helps and if it helps then you must have allergies,” and that was the approach and to me I was really hesitant to try it but that was after four months of not knowing what was wrong and feeling horrible all the time. He was be giving me medicine you know that I totally didn’t need and taken more medication I totally didn’t need after I had already been on several types of medication, antibiotics at the beginning when they thought I had a urinary track infection so and I didn’t and know that is why I probably felt it was untrustworthy because you know I don’t like take medication or going through medical procedures that I simply don’t need and I just felt like there was a lot of that.

-----
APPENDIX C

CONTENT ANALYSIS SCHEME -- HELPS

PRIOR USE

Helps as elements of bridges people construct to help them move through situations was a fundamental brick in constructing the Sense-Making Methodology. Dervin, Zweizig, Banister, Gabriel, Hall, and Kwan (1976) allowed informants to define their own helps or "utilities" to create a scheme encompassing more than the traditional utilities of decision making, information finding and problem solving. Dervin and Nilan (1982) added a help to those found in this first study, and by Dervin, Ellyson, Hawkes, Guagnano and White (1984) 16 helps had been classified and given to informants for use in describing their situations. Since then, numerous other studies have employed modified versions of the helps scheme in their analyses of what it was people either wanted or got to facilitate them in situations (XXXX). The scheme described below was largely assembled from the classification schemes used in previous studies, with modifications made to accommodate the nature of the informants' discussions of their situations.

CODEBOOK FOR HELPS

<table>
<thead>
<tr>
<th>INSTRUMENT BLOCK</th>
<th>MAXIMUM CODES</th>
<th>CODE CHAIN &amp; CODE RANGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>5b. SPECIAL LEARNING - REASON SPECIAL</td>
<td>LEARNING BLOCK 1, 2,3 (if present in transcription)</td>
<td>nn-nn-n</td>
</tr>
<tr>
<td>TIME-SPACE FOCUS: SPECIFIC LEARNING</td>
<td>...help - depth 1</td>
<td>00-15</td>
</tr>
<tr>
<td></td>
<td>...help - depth 2</td>
<td>00-15</td>
</tr>
<tr>
<td></td>
<td># of depths coded</td>
<td>1,2</td>
</tr>
<tr>
<td></td>
<td>IF A SPECIAL LEARNING BLOCK IS PRESENT, BUT CONTAINS NO HELP: code 00-00-0</td>
<td>0 or 00 for missing</td>
</tr>
<tr>
<td>6a. HELP SOUGHT</td>
<td>HELP SOUGHT BLOCK 1,2,3 (if present in transcription)</td>
<td>nn-nn-n-n</td>
</tr>
<tr>
<td>TIME-SPACE FOCUS: SITUATION</td>
<td>...help - depth 1</td>
<td>00-15</td>
</tr>
<tr>
<td></td>
<td>...help - depth 2</td>
<td>00-15</td>
</tr>
<tr>
<td></td>
<td># of depths coded</td>
<td>1,2</td>
</tr>
<tr>
<td></td>
<td>IF A H BLOCK HAS HELP SOUGHT CONTENT, BUT CONTAINS NO HELP, FOR DEPTH 1 AND 2: code 00-00-0</td>
<td>0 or 00 for missing</td>
</tr>
<tr>
<td>6b. COMPLETENESS OF HELP</td>
<td>HELP SOUGHT BLOCK 1,2,3 (if present in transcription)</td>
<td>complete chain: nn-nn-n-n</td>
</tr>
<tr>
<td>TIME-SPACE FOCUS: SITUATION</td>
<td>...completeness of help</td>
<td>0 for missing</td>
</tr>
<tr>
<td></td>
<td>1=None</td>
<td>nn-nn-n-n</td>
</tr>
<tr>
<td></td>
<td>2=some</td>
<td>nn-nn-n-n</td>
</tr>
<tr>
<td></td>
<td>3=all</td>
<td>00-10</td>
</tr>
</tbody>
</table>

10b and 10c SOURCES - THENヘルPFULNESS NOW HELPFULNESS | SOURCE BLOCK 1 THROUGH NN (if present in transcription) | nn-nn-n-n-n |
| ...then helpfulness score | 00-10 |
4
7

; #

"
"
"
"
"
"
? "
"
"
A

<9 : 9
9
7#

BB +B
BB +>
BB +>
+$
3

+
3

4 7 9 # D<
#<7<
7 1
1 4
B+ +B

17

97 1

:

1(

B+ +B

4
; #
*/

B+ +B

*/

7 1

1 4

*/

1 4

7 1

*/

7 1

B+ +B

BB

B+ +B

B+ +B

BB
1<

47 9 #

E
!

F
$

1 4

!
!
1 4 B+$

G
,, ,, ,
B+ +B

BB
1<

!
,, ,, ,, ,, ,
1;
!
0

0

!
7 11 4
,, ,, ,
,, ,, ,, ,, ,
E;

"
"
"

$
$

E

7 1"
"
"
1 4
$

!
/
$

8
B+ B+

/

G
$

/

(1

<;9 # 1(

B> B>
$
B2 B2

;

E
$

!" H
!

"H

!

283

!
!


informant seek (regardless of whether they got it) at this point in time-space -- for the whole situation? for a specific learning? for use of a specific source?

* All coding is to be based on what is in the block location. You apply context because you need to understand what situation the informant saw self as in, but only to give meaning interpretively to the transcript block you are coding.

* Because the questionnaire focuses on informant sense-making -- often discussed interpretively as information seeking and use -- it is important that you not automatically assume that getting info in the traditional sense is the help the informant sought. In SMM, every one of the helps code is conceptualized as information, i.e. fodder for sense-making.

*In SMM, helps (and all outcomes, in fact) are assumed to be interpretively free of causal inputs -- i.e. the informant is the one who builds the bridge between. This point is absolutely essential to SMM. As coders, we must free ourselves of assuming that particular journeys lead to particular ends and allow the interpretive to intervene. Thus in SMM, we do not presume that:
  -- television leads to entertainment, escape
  -- teachers lead to information acquisition
* We are doing each block to two depths using the help scheme. Because some blocks have more than two depths (again roughly 10% of the data), you need to select which depths to enter as your final codes. Here are general rules:
  -- rule 1: identify all possible codes
  -- rule 2: select codes with higher numerical values (e.g. 10 over 01)
  -- rule 3: balance this with representing what you see as the informant's interpretive thrust
  -- rule 4: use codes 00-01-02 only if you must to adhere to rule 3
  -- CAUTION: Do not knee-jerk into the 00-01-02 codes. Because of the nature of the questionnaire as an instrument, and because of the way society has taught us to talk about our sense-making (i.e. as if it all involves accessing accurate info), it is too easy to slide into these codes.

* Bear in mind that no matter the tense of the informant’s statement, the metaphorical code of the help could be past, present or future oriented. The help may be that which was: obtained; wanted but didn’t get; is sure he/she will get in future; wants and hopes to get in future.

Coding is easier however if you translate every help into a statement that begins in one of these 3 ways:
  -- The help I wanted was...
  -- The help I got was..
  -- The help I want/expect is...

*If the informant speaks about the journeys of others, you need to determine how the other journey is part of the informant's journey and not code as if the other is our informant.

284
*The coding rule is to choose higher coder values over lower ones. So given a choice between a text segment with a 01 code and one with a 10 code, 10 gets preferences.

-- If however, after choosing codes there is an empty depth and a 00-01-02-03 code is a legitimate description for a text segment.

EXAMPLE:
I wanted someone to tell me what I needed to do.
Code 10 (for I wanted someone to tell me)
Use empty depth for 01 (what I needed to do).

-- If after examining your code choices you decide that a higher code value really was a minor theme of the informant's text, you can choose a lower code value.

EXAMPLE:
I wanted not to be a volunteered helper at the wedding but to be treated fairly and included as an actual participant.
Codes: 11 (get control, avoid bad situation), 05 (get togetherness, fairness), and 12 (get resolution -- what informant wanted, to be included in wedding party).
Final choices: 11, 05.
<table>
<thead>
<tr>
<th>CODE &amp; CATEGORY</th>
<th>DEFINITION</th>
<th>RULES</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>GOT PICTURES, IDEAS</td>
<td>informant needs/got ideas, pictures but the nature of sense-making is undifferentiated and has no movement implications</td>
<td><strong>01 vs 04</strong>&lt;br&gt;*focus of 04 is on searching/finding sources of input -- once source is found, 04 no longer relevant&lt;br&gt;&lt;br&gt;<strong>01 vs 05</strong>&lt;br&gt;*if said was helped with no description of how, code 01 for non-human help and 05 for human help&lt;br&gt;&lt;br&gt;<strong>01/02/03 vs 05</strong>&lt;br&gt;*must be able to see informant as getting more from human than just information&lt;br&gt;&lt;br&gt;<strong>01/02/03 vs 11</strong>&lt;br&gt;*if more about a perspective, insight, clarity, code 11&lt;br&gt;&lt;br&gt;<strong>01 vs 13</strong>&lt;br&gt;*if got information needed to do something, code 13</td>
</tr>
<tr>
<td>02</td>
<td>GOT DIRECTIONS</td>
<td>informant needs/got pictures of directions, to find and choose direction(s) to travel in</td>
<td><strong>01/02/03 vs 05</strong>&lt;br&gt;*must be able to see informant as getting more from human than just information&lt;br&gt;&lt;br&gt;<strong>01/02/03 vs 11</strong>&lt;br&gt;*if more about a perspective, insight, clarity, code 11&lt;br&gt;&lt;br&gt;<strong>02 vs 03</strong>&lt;br&gt;*if has a direction and planning hows, code 03&lt;br&gt;&lt;br&gt;<strong>02 vs 04</strong>&lt;br&gt;*if direction is for searching/finding sources, code 04</td>
</tr>
<tr>
<td>CODE &amp; CATEGORY</td>
<td>DEFINITION</td>
<td>RULES</td>
<td>EXAMPLES</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------</td>
<td>-------</td>
<td>----------</td>
</tr>
</tbody>
</table>
| 03              | informant needs/got pictures of hows, methods, recipes or embodied practice with these -- the sense-making mandate is to get on with it | 01/02/03 vs 05  
*must be able to see informant as getting more from human than just information  
01/02/03 vs 11  
*if more about a perspective, insight, clarity, code 11  
02 vs 03  
*if has a direction and planning hows, code 03 | *got techniques  
*got procedures  
*got models, guidelines  
*got examples of final products  
*able to practice  
*got skills |
| 04              | informant needs/got avenue for connecting to sources -- the sense-making mandate is to search and find sources of inputs/resources | NOTE: This is not communicating.  
01 vs 04  
*focus of 04 is on searching/ finding sources of input -- once source is found, 04 no longer relevant  
04 vs 13  
*if searching/ finding source of information, code 04 -- if found some need source, code 13 | *got connected to others  
*got connected to information  
*got leads to connections  
*got relayed  
*got searching & finding |
| 05              | informant wants/got support, praise, understanding, exceptional help - - with the flow of help to the informant -- someone is on informant’s road but only to help informant | NOTE: This is someone listening to/praising/ supporting information. It is not dialogue.  
01/02/03 vs 05  
*must be able to see informant as getting more from human than just information  
05 vs 06  
*05, giving is from helper to informant -- 06 is dialogue, exchange  
05 vs 10  
*if said someone’s help made things easier, code 10 | *got emotional help  
*got confirmation  
*got reassured  
*got listened to  
*got elusive human help  
*got positive feedback  
*got counseling, therapy  
*got input supporting my position  
*able to trust someone  
*someone to bounce my ideas off of |
<table>
<thead>
<tr>
<th>CODE &amp; CATEGORY</th>
<th>DEFINITION</th>
<th>RULES</th>
<th>EXAMPLES</th>
</tr>
</thead>
</table>
| 06              | GOT HUMAN TOGETHERNESS | informant needs/got sense of traveling a road with others or that others have traveled before in similar situations in similar roles with similar status; others are on informant's road as co-travelers | NOTE: This is where dialogue, two-way, give-and-take communicating goes.  
05 vs 06  
*05, giving is from helper to informant -- 06 is dialogue, exchange | *felt not alone  
*able to network  
*connected to a community  
*connected to a common cause  
*being in harmony with others  
*got openness, honesty  
*been through similar situations  
*they did similar things  
*got fairness, justice, equitable treatment  
*bounced ideas off of each other |
| 07              | GOT CENTERED | informant needs/got inner/self control, refuge coming from the inside | 07 vs 11  
*if controlling is focused on self/inward, code 07 -- if controlling is focus on others/outward, code 11  
07 vs 14  
*if specific to escaping, code 14 -- if specific to stress reduction, code 07 | *be able to calm down, reduced stress  
*vented frustrations  
*achieved peace of mind  
*got spiritual guidance  
*got spiritual input/help  
*accepted situations (got others to do so)  
*gave meaning to life  
*better understanding of me  
*got lessons for life  
*not taking it personally  
*be more patient  
*life has to be endured  
*stick to your
<table>
<thead>
<tr>
<th>CODE &amp; CATEGORY</th>
<th>DEFINITION</th>
<th>RULES</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>08</td>
<td>GOT STARTED, MOTIVATED</td>
<td>*put on the right track *got a starting point *had inspiration *I'm the one has to do it</td>
<td></td>
</tr>
<tr>
<td></td>
<td>informant needs/got started down a chosen road on which informant was somehow stalled at the opening gate in some way</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>KEPT GOING, MADE PROGRESS</td>
<td>*stayed on the right track *continued in the right direction *got initiative to keep going *able to stay on right track in future *able to continue in right direction in future *saw I needed to work harder *got lessons that enabled doing it right in future *got inspiration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>informant already traveling down the road or has traveled it before and needs/got help continuing, staying on track, making progress</td>
<td>NOTE: Code if continuing on road already traveled or started, or projecting self to travel this road again in the future</td>
<td></td>
</tr>
<tr>
<td>CODE &amp; CATEGORY</td>
<td>DEFINITION</td>
<td>RULES</td>
<td>EXAMPLES</td>
</tr>
<tr>
<td>----------------</td>
<td>------------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>10 JOURNEYING GOT EASIER</td>
<td>informant already traveling down the road and needs/got help that makes it easier, quicker, more convenient, timelier, less work</td>
<td>05 vs 10 *said someone's help made things easier, code 10 10 vs 11 *emphasis in 11 is on bad things happening, whereas with 10 help may come in good situations</td>
<td>*quicker  *timelier  *more efficient  *more convenient  *came at right time  *saved me, got more time  *got less work  *got everything all at once  *got someone else to do work</td>
</tr>
<tr>
<td>11 GOT CONTROL</td>
<td>informant wants to or has avoided a bad situation or gotten out of one or controlled one, including both material situations and cognitive ones such as confusion, lack of clarity</td>
<td>01/02/03 vs 11 *if more about a perspective, insight, clarity, code 11 07 vs 11 *if controlling is focused on self/inward, code 07 -- if controlling is focus on others/outward, code 11 10 vs 11 *emphasis in 11 is on bad things happening, whereas with 10 help may come in good situations</td>
<td>*got control of bad situation  *asserted self in situation  *avoided errors  *got out of, avoided, prevented a bad situation  *reduced disorganization  *reduced chaos  *got rid of problem  *got out of fog of confusion  *lifted fog from road  *figured out if situation wrong or right  *got clarity of situation  *got balanced, deeper view  *put situation in perspective  *saw broader/deeper/other perspectives</td>
</tr>
<tr>
<td>CODE &amp; CATEGORY</td>
<td>DEFINITION</td>
<td>RULES</td>
<td>EXAMPLES</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>12 REACHED GOALS</td>
<td>informant wants to get or got to the end of the journey - the destination he/she set out for</td>
<td></td>
<td>*got resolution *got there *accomplished things</td>
</tr>
<tr>
<td>13 GOT RESOURCES</td>
<td>informant wants/got something he/she interprets as a resource needed for making the journey -- specific concrete or informational things to be used in work/project</td>
<td><strong>04 vs 13</strong>&lt;br&gt; *if searching/finding source of information, code 04 -- if found some need source, code 13</td>
<td>*got concrete, material things (money, clothes, possessions, etc)&lt;br&gt;*saved money, resources&lt;br&gt;*got images to use for website&lt;br&gt;*got articles to use in syllabus&lt;br&gt;*used people as subjects</td>
</tr>
<tr>
<td>14 GOT REST, RELAXATION, ESCAPE</td>
<td></td>
<td><strong>07 vs 14</strong>&lt;br&gt; *if specific to escaping, code 14 -- if specific to stress reduction, code 07</td>
<td>*got physical relaxation&lt;br&gt;*able to divert attention&lt;br&gt;*able to escape it all&lt;br&gt;*took mind off things</td>
</tr>
<tr>
<td>15 GOT/FELT PLEASURE</td>
<td>informant wants/got pleasure, happiness, joy</td>
<td></td>
<td>*got entertained&lt;br&gt;*got enjoyment&lt;br&gt;*got excited with something&lt;br&gt;*it was gratifying&lt;br&gt;*it pleased me</td>
</tr>
</tbody>
</table>
REFERENCES


Dervin, B. (2001). *What we know about information seeking and use and how research discourse community makes a difference in our knowing*. Background paper prepared for Health Information Programs Development, National Library of Medicine, Bethesda, MD. Available [online]: http://communication.sbs.ohio-state.edu/sense-making/art/artabsdervin01nlm.html.


298


Ng, K. B. (2002). Toward a theoretical framework for understanding the relationship between situated action and planned action models of behavior in information retrieval contexts: Contributions from phenomenology. *Information Processing and Management, 38*(5), 613-626.


