

Literature Review

New studies of the information behavior of scholars have been published in the last several years. These latest studies expand on critical research done in the 1980s and 1990s. Current information science researchers are revisiting this topic primarily to ascertain the effect of technological advances on the information behavior of scholars.

The patterns of information need, seeking, managing, use and giving of scholars are best described by three key studies. These studies are “Scholarly Work in the Humanities and the Evolving Information Environment” by William S. Brockman, Laura Neumann, Carole L. Palmer, and Tonyia J. Tidline (2001); “Modeling the Information-Seeking Behavior of Social Scientists: Ellis’s Study Revisited” by Lokman I. Meho and Helen R. Tibbo (2003); and “The information work of interdisciplinary humanities scholars: exploration and translation” by Carole L. Palmer and Laura J. Neumann (2002).

One of the key similarities among the three studies was that none of them explicitly acknowledged or defined the “information need” of scholars. In every case, an understanding of this concept was simply assumed. We noted that scholars have information needs that include keeping current in their ever-evolving and changing topics of study, as well as constantly researching in order to produce new ideas.

Information seeking, on the other hand, was extensively described by all three studies. Meho and Tibbo base their description of information seeking on Ellis’s Model of Information-Seeking Behavior. They place several behaviors in this category, including “starting” (searching broadly), “chaining” bibliographies, “browsing” and “monitoring” sources. Meho and Tibbo added a new behavior to Ellis’s list, called “accessing” which they defined as scholars’ “need to get hold of” resources of information by using such services as interlibrary loan. (Meho and Tibbo, 2003, p. 581)

Brockman et al use a broader definition of information seeking, using the term “reading” to mean chaining bibliographies, re-reading materials and using personal collections to stay current. This study also includes “networking” and “researching/searching” as types of behavior involved in scholarly information seeking. Palmer and Neumann’s study focuses on interdisciplinary scholars and defines the primary information seeking of this group as “exploration.” This includes scanning information sources as well as “priming,” which they defined as “contextualizing” and “converting” information found throughout various disciplines for use in the work being done by interdisciplinary scholars.

All three studies describe the techniques scholars utilize to manage the information they wish to keep for future reference. Palmer and Neumann's study, as well as Meho and Tibbo's study, describe how scholars create their own collections of books and journals over time and at their own expense. Brockman et al note that scholars create extensive bibliographies, using tools such as software or note cards. Meho and Tibbo's study is the only one of the three to explicitly explain why scholars use these techniques.

Networking as an information-sharing behavior was discussed by all of the studies and included both formal and informal connections with colleagues. One of the ways that scholars used these networks was to verify information, according to Meho & Tibbo. Both Brockman et al and Palmer and Neumann included the writing process as an information-sharing behavior. Throughout the writing process, scholars confer with colleagues as well as offer drafts of their work for review. (Brockman et al, 2001, p. 26) Scholarly writing generally involves creating new interpretations and findings in the scholar's field of study. Because this writing is meant to be distributed and shared with others in the scholar's field, Palmer and Neumann view the writing process as one of sharing information, noting "ideas mature as a written work is constructed and crafted, and articulating those ideas is a creative... communication act" (Palmer and Neumann, 2002, p. 100).

Brockman et al broadly categorized the writing and research/search processes as information use. Palmer and Neumann more specifically noted that "reading for writing," re-reading materials, and building personal collections entailed information use by scholars. Meho and Tibbo focused more on the behavior scholars use with information discovered through the seeking process. They state that scholars are constantly monitoring and verifying sources of information. Scholars are also interested in "differentiating" information by its potential quality and relevance to their particular research needs.

The consistency of the findings of these recent studies demonstrates that scholars exhibit information behaviors that are relatively constant across the board and not dependent on the scholar's field of study. Many of the information behaviors described have been attributed to scholars for several decades, with newer technology becoming "mainstays of interpersonal communication, the management of personal information, and the writing process" (Palmer and Neumann, 2002, p. 100). The evolution of technology, according to these three studies, is causing the information behaviors of scholars to evolve, as well. Technology allows scholars to "work with and consult more material and better verify ideas or claims." (Brockman et al, 2001, p. 31) Meho & Tibbo went further and said that scholars can also benefit if there is "more collaboration and networking among libraries as well as by the various digital library projects and increased access to databases with full-text items" (p.585). Along the same vein, Palmer & Neumann agreed that "collections of sources and tools can be developed and combined to better support the ways that scholars work, even as they move between digital and physical environments..."(p.112).

Field Work Summary

Our group chose to study the Information Behavior of scholars. We discovered in our literature review that scholars exhibit remarkably consistent information behavior, transcending field and school of thought. We also found that technological advancements are having a significant impact on the way scholars interact with information. In order to delve more deeply into the IB of scholars, we chose to do one-on-one interviews with a particular group of scholars, then complement that data with a survey of a broader group that included both humanities and social science scholars.

We chose Allen Foster's nonlinear model of information-seeking behavior to serve as the framework for our research. Unlike many other IB models, Foster's model covers more information behaviors than just information-seeking and specifically looked at the information behavior of interdisciplinary scholars. We were also intrigued by its inclusion of context in the model. We would find that the context played a significant role for our participants.

We contacted the Women Studies department to ask some of their graduate students to participate in our study. The interdisciplinary nature of Women Studies was of particular interest to us. We wondered if their information behavior might be markedly different from that of other, more discipline-based, scholars. In our opinion, graduate students, especially Ph.D. students, fall into the category of scholars. However, they are often disregarded by researchers as part of the undergraduate population because they are still students. While there are some IB characteristics that graduate students share with undergraduates, such as greater reliance on advisors (Barrett, 330), there are more similarities between graduate students and faculty. Both groups tend to search thoroughly until they have exhausted their resources, and are "more interested principally in primary materials..." (Barrett, 2005, p. 329). These similarities led our group to categorize graduate students as scholars.

Four scholars responded to our invitation to interview. Each interview was approximately thirty minutes long and was conducted in a place chosen by the participant. As discussed by Foster, this was done to "enhance contextual richness and minimize fragmentation." (Foster, 2004, p. 230) The interview schedule (Appendix A) was developed using the sample interview guide included in the LIS 510 syllabus, then complemented by interview questions culled from our readings as well as some original questions.

Each interview was recorded using a digital recorder, then fully transcribed. We utilized two methods of coding. The first method identified instances of the five patterns of information behavior – need, seeking, managing, giving/sharing and using. The second method used a code page developed from the Foster model (Appendix B) and was significantly more extensive, covering both the "contextual interactions of the nonlinear model" and the "core processes of the nonlinearly model." (Foster, 2004, p. 232) Appendix C contains a sample page from a coded interview. This style of coding allowed us to look

at the interviews from two different perspectives and exposed some of the weaknesses of the Foster model, as discussed later.

The scholars we interviewed were all Ph.D. candidates in Women Studies. Their undergraduate degrees were in diverse fields such as mathematics, psychology and Spanish. Our participants were all in the process of defining their research questions or beginning to write their dissertation proposals. None had actually started her dissertation research or writing.

In creating our survey questions, we referenced the methodology sections of many of the articles in our literature review. Additionally, one of the other groups in our class suggested an article from which they had taken many of their survey questions. (Brown, 1999, p. 10) With our framework in mind, we created a survey of fifteen questions (Appendix D) using the Catalyst tools. The survey was sent to 360 UW faculty members. The list of names was created by randomly selecting email addresses from the departments in the College of Arts and Sciences. Departments that were so-called “hard” sciences were judged to be outside the scope of our project.

We focused our survey questions primarily on the seeking and managing of information and, to a lesser extent, on information use, as we felt that these were the areas best suited for data collection via a survey. We relied on the interviews to touch on the scholar’s information needs and information-sharing behaviors.

We received twenty-two responses to our survey. Of the respondents, 82% were professors, 9% were lecturers and 9% marked “other.” The reported primary departmental affiliations ranged from Women Studies to Political Science, Art and Psychology, giving us a mix of humanities and social sciences respondents. The length of time survey participants had been faculty members, at any institution, were fairly well distributed, with “16 or more years” as the most frequent response.

We found the information behavior of both our participants and survey respondents to be consistent both with each other and with the findings of our literature review. The information needs of our participants centered on finding sources for their research projects and satisfying academic requirements such as writing progress reports. A methodological flaw in our survey is that while we asked respondents where they searched for a recent information need, we did not ask specifically what the need was. From responses to the question “How do you stay current in your field?” (Appendix E, Chart 4) we can infer that preparing for conferences, finding needed journals and books and preparing to teach courses are major information needs of scholars.

For a typical research project, scholars use a diverse set, yet limited number, of sources. (Appendix E, Chart 2) Almost 70% of our survey respondents said they generally consult 2-5 sources for a typical project. Journals and books were reported by 100% and 95% of respondents, respectively, as resources they used frequently as a source of information. (Appendix E, Chart 3) We found that our

scholars use the same sources over and over. In response to the question “Did you find what you needed at your first source, or did you look additional places?” only 32% said “My first source answered my question.” (Appendix E, Chart 1) Yet 86% said their initial source is where they normally turn first in similar situations. Per the “Principle of Least Effort,” familiarity can trump quality.

This diversity of sources is especially true for interdisciplinary scholars. Our interview participants spoke repeatedly about the difficulties of finding sources that are relevant to their research topics. This difficulty included not only tracking down the sources using catalogs and databases but physically finding the sources. Because their research is interdisciplinary, participants said their sources were likely to be far-flung, housed in discipline-specific libraries in unfamiliar organizational schemes.

We found that the primary information management methods used by the graduate students we interviewed were personal bibliographic databases and their computer filing systems. These were complemented by physical filing systems only when necessary: for example, when receiving a handout in class. The participants displayed a clear preference for having digital copies of their sources that they could save to their computer hard drives. Our survey respondents, on the other hand, reported a more balanced mix of digital and physical information management techniques. (Appendix E, Chart 5)

Networking plays an important role in the lives of scholars. All of our participants talked extensively about the information shared with them by their advisors. We were surprised, however, by the lack of reported instances of information sharing between graduate students as peers. Conferences and journals are other primary ways that scholars share information. Ninety-five percent of the survey respondent said they regularly read current journal issues. (Appendix E, Chart 4) While 41% said they use attendance at conferences as sources of information, only 14% said they used conference proceedings as sources. This suggests the importance of networking at a conference as a way of sharing information.

Needing and using information are fundamental to the professional lives of scholars. Thus, we found that information need and information use are inextricably linked, perhaps more so than in other professions. The very essence of being a scholar is studying ideas, making information of paramount importance. One of the main ways that scholars use information is to stay current in their field. The scholars in our survey reported an average of 6.5 different ways they keep current. (Appendix E, Chart 4) These ranged from reading current issues of journals to personal communication and correspondence.

Foster’s model of nonlinear information seeking provided an interesting lens through which to view our interview and survey results. Because he focused on interdisciplinary scholars, his model proves especially relevant to the data collected from our interviews. Most of the instances of IB described by the participants fell into the “Opening” category. This makes sense, because the scholars we interviewed were in the beginning of both their dissertation process and their academic careers. We also saw substantial amounts of “Orientation” and “Consolidation” as the students moved through the research

process. This corresponds to Foster's description of the nonlinear nature of information-seeking behavior. The students did not appear to move from Opening to Orientation to Consolidation in a straight line; rather, they bounced around among the behaviors in these three core processes as they progressed in their projects.

Foster also proposes a variety of contextual forces that exert influence on the scholar's information behavior. These include the scholar's external context, internal context and cognitive approach. The primary contextual force cited by our participants was what Foster calls the "social and organizational" context within which the graduate students work. One woman in particular spoke of how a lack of responsiveness from her advisor affected not only her work but her attitude toward the program. All the participants expressed frustration with the difficulties they faced in finding relevant information in a field that has not yet established substantial depth and breadth of its own but rather relied on other, more established fields.

The model of information behavior proposed by Foster is lacking in several areas. One of these is that techniques for managing information are not explicitly covered, but simply alluded to. Aside from his discussion of networking, Foster does not talk much about giving/sharing. Also, some of the distinctions between his terms were so fine that they made using those terms to code our interviews unwieldy. More specifically, his four characteristics of the user's cognitive approach are so similar and so interwoven that they are difficult to operationalize. Finally, this model of information behavior may not be applicable to other groups.

The information behavior of scholars is remarkably consistent across the various fields, across age groups and across academic status. We did, however, encounter many areas that need further study. First, one of the questions on our survey was "Do you prefer journal articles in print or electronic form?" More than 50% of respondents said, "It depends on the article/journal." We would be interested in finding out what factors influence that decision. Is it the format, the subject matter or the access methods? Second, when asked where they searched next if their first source did not answer their question, not a single respondent said they consulted a librarian. Why not? Finally, we asked the short-answer question, "How did you know you were done searching?" This seemed to us, to be a legitimate, valid question. To most of the survey respondents, however, it seemed silly and trivial, with "Found what I was looking for" as the most popular answer. One respondent actually answered simply "Duh!" This suggests to us a real gap between how we, as information professionals, view information, and how "normal people" view information. How can we bridge that gap? Or do we need to? What would be the professional implications for helping users to view information in the way that we do? These are just a few of the questions about the information behavior of scholars that we believe are deserving of further study.

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Appendix A – Interview Schedule

- I. Short explanation of interview (see first paragraph)
 - a. 30 min.
 - b. ask you about the nature of your work
 - c. ask you to describe a recent situation in which you needed to find or learn about something
 - d. responses used in a class presentation
 - e. identity will remain anonymous
 - f. do you have questions?
- II. State interviewee code: A, B, C, or D
- III. Warm up
 - a. What program are you in (M.A., PhD.)
 - b. Year in program
 - c. Prior educational background
 - d. Current scholarly activities (i.e., projects you are working on)
- IV. I'd like you to think of a situation that occurred within the past month where you needed to find out about something or learn something for your graduate work. Does such an incident come to mind?
- V. I'd like you to walk me through this event by describing what happened step by step. Let's start by hearing about what prompted the need. Can you tell me what was going on at that time?
- VI. What did you do from there?
- VII. How did you know about this source? Do you use it regularly?
- VIII. How did you think it would help?
- IX. Did it work for you? How did it turn out?
- X. Does this situation you described differ – in terms of what you did and what happened – from similar situations?
- XI. How do you keep track of all of those different sources in your work?
- XII. Do you consider the work you do “interdisciplinary”? How so?
- XIII. Have you previously worked in a single subject area?
- XIV. What differences did you notice between working on a topic within one subject area and working on something that might cover two or more disciplines?
- XV. Do you find some strategies or activities work more effectively, or indeed less effectively, in research for interdisciplinary topics? Why do you think so?
- XVI. Is there anything more you'd like to add – about the event - or how you use information?
- XVII. Thank you very much for your time.

Appendix B – Coding Guide

Information Behavior – Coding Keys

Five patterns of Information Behavior:

Need
Seek
Manage
Give/Share
Use

Coding Keys Based on Foster's *Nonlinear Information Seeking* :

Contextual Interactions of the nonlinear model (Table 3, page 232):

(*Not sure why there are spaces in his chart, like between “The project” and “Navigation”)

(Definitions)

1	External context	2	Internal context	3	Cognitive approach
1a	<u>Social and organizational</u>	2a	<u>Feelings and thoughts</u>	3a	<u>Flexible and adaptable</u>
1b	<u>Time</u>	2b	<u>Coherence</u>	3b	<u>Openness</u>
1c	<u>The project</u>	2c	<u>Knowledge and understanding</u>	3c	<u>Nomadic thought</u>
1d	<u>Navigation issues</u>			3d	<u>Holistic</u>
1e	<u>Access to sources</u>				

Core processes of the nonlinear model (Table 4, page 232):

([Definitions](#))

A	Opening	B	Orientation	C	Consolidation
A1	Breadth exploration	B1	Problem definition	C1	Knowing enough
A2	Eclecticism	B2	Picture building	C2	Refining
A3	Networking	B3	Reviewing	C3	Sifting
A4	Keyword searching	B4	Identify keywords	C4	Incorporation
A5	Browsing	B5	Identifying the shape of existing research	C5	Verifying
A6	Monitoring			C6	Finishing
A7	Chaining				
A8	Serendipity				

Contextual Interactions of the nonlinear model definitions:

1. External Context

"Information behavior is not isolated from the context within which the information seeker works." (232)

- a. Social and organization
 1. Goodwill networks between people
 2. Affects funding and access to resources like journals
 3. Social networking (also seen in Opening, below)
- b. Time -- Time constraints
- c. The Project -- Financial constraints
- d. Navigation Issues -- Organization of information
- e. Access to Sources: "Problems incurred by interdisciplinary researchers as they move from the familiar territory of their home discipline towards the alien information environment of other disciplines." (232)

2. Internal Context -- "Factors unique to each information seeker's own profile." (233)

- a. Feelings and thoughts
- b. Coherence
 1. a : systematic or logical connection or consistency
 2. b: integration of diverse elements, relationships, or values (got these from the dictionary)

- c. Knowledge and understanding
 - 1. Experience
 - 2. Information need
 - 3. Knowledge level

3. Cognitive Approach

- a. Flexible and adaptable

"Emphasizes the mental agility and willingness to adapt to the different information and disciplinary cultures that are intrinsic to working in an interdisciplinary field." (233)

- b. Openness -- "No prior framework for judging relevance is implemented: all source, disciplines and ideas are viewed as viable until proven otherwise." (233)
- c. Nomadic thought -- "Embraces the process of thinking about a topic in many diverse ways to find the information needed in locations and ways remote from the original ideas." (233)
- d. Holistic -- "Important to grasping and incorporating concepts from diverse areas and bringing them together either as an answer or to generate new questions and information searching directions." (233)

Core processes of the nonlinear model definitions:

- A. **Opening** -- "Corresponding with the process of moving from a state of orientation to actually seeking, exploring and revealing information. ...a nonlinear component representing a collection of activities. Each of the activities interacted and informed both further Opening activities and the other core processes." (233)
 - 1. Breadth exploration
 - 1. "conscious expansion of searching to allow exploration of every possibility." (233)
 - 2. relates to Orientation as choice of keywords, selection of sources, and the initiation of combinations of other core processes.
 - 2. Eclecticism
 - 1. "encompasses accepting, gathering and storing information from a diverse range of both passive and active sources, sometimes over considerable time periods, for latter incorporation and satisfaction of information needs." (233)
 - 2. "Eclecticism influenced information-seeking as a determination to obtain information from as many channels as possible and to absorb as many pieces of information as possible to reveal new concepts and ideas." (233)
 - 3. combines active, passive, and serendipitous information acquisition.
 - 3. Networking
 - 1. a main activity of participants
 - 2. conferences, social gatherings, colleagues, and departmental research groups
 - 3. "recognized by participants as a tool for exploring interdisciplinary subjects and opening up new concepts and areas not revealed through traditional searching."

4. "Much of the decision to use Networking was placed in the context of limited knowledge, limited resources such as time and access, and coping with information overload." (233)
4. Keyword searching
 1. associated with use of databases, online catalogues, Internet search engines, and online journals.
 2. terminology was not always appropriate or transferable across disciplines
5. Browsing -- of most use to information seekers who needed to change their disciplinary focus
6. Monitoring
 1. repeat visits to obtain updates
 2. ongoing processes following identification of fruit-bearing sources of information
 3. ease of access played a significant role, with reliance on Internet web sites and particularly homepages of useful people or organizations, Mailbase lists, current periodical shelves and new book catalogues.
7. Chaining -- ideas as well as sources
8. Serendipity -- closely associated with Browsing, Eclecticism and Networking
- B. Orientation** -- "focuses on identification and which direction to look." (234)
 1. Problem definition
 1. defining the focus and boundaries of the information problem.
 2. process was not clear-cut; participants said they repeatedly redefined problems up to closure of information-seeking.
 2. Picture building -- mapping out in their minds, and on paper, the disciplines and concepts relevant to achieving an interdisciplinary overview of the topic
 3. Reviewing
 1. use of existing knowledge in an area, reading or accessing a personal collection and considering material already gathered.
 2. established a baseline of information from which ideas followed, esp how to fill in the gaps
 4. Identify keywords -- finding suitable terms for subsequent searching
 5. Identifying the shape of existing research
 1. identifying key names, articles and latest opinion in disciplines
 2. identifying and selecting sources
 3. identifying disciplinary communities, which might be useful in current research
- C. Consolidation** -- "judging and interpreting the work in progress and deciding whether further information-seeking is necessary." (234)
 1. Knowing enough -- questioning whether sufficient material to meet the present information need had been acquired.
 2. Refining -- process of deciding on boundaries for searches and of selecting a narrower search focus
 3. Sifting -- process of deciding which material and sources were relevant
 4. Incorporation
 1. "...key information organization process..."
 2. Interviewees found it necessary to pause in their diverse information-seeking to assemble the material they had been exposed." (234)
 3. combination of thinking, writing and discussion with colleagues

4. recurrent throughout information-seeking
5. Verifying
 1. less common aspect of interdisciplinary information behavior
 2. "Some interviewees reported feeling uncertain of their ability to judge the accuracy of material from other disciplines, but a feeling of information overload prevented their doing additional searching to verify the contents of papers. Where it did occur, Verifying tended to be limited to the accuracy of quotations and references." (234)
6. Finishing
 1. "sweeping up the loose ends"
 2. incorporates other activities

Appendix C – Sample page from coded interview

D: What I've been doing this month has just been **distilling some of the work , some of the research I've got ready then**. So it hasn't been as much searching for new things. It's been more of condensing work that I've already done and writing. But I certainly can think of some examples where I've had questions about how does the method section look in my proposal? Or what else needs to go into it. C2
C3
C4

I: So, I'd like you to talk a minute about what prompted that search for new information.

D: Basically, y'know, I need to turn in a dissertation proposal and some lack of background in what it should look like and what all the elements are, and specifically when I was writing it, the methods section, I had done a lot of work on kind of the theoretical aspect of the methodology of what I was doing, but had less experience with **what actually needs to go into the proposal**.

I: So what did you do?

D: **I've done things from talking to colleagues of mine that have turned things in to look at samples, to looking up resources on the web or at the literature on what a dissertation proposal looks like and then checking in with one of my committee members who's training me in the methods that I'm using to check in with him about what he thinks should be in there.** A3
A5
A4

I: Did you find what you were looking for? What was helpful?

D: It was helpful to look at models and also helpful **to talk to my committee member who was able to tell me that, ok well, there's different ways that these proposals are done, with different methods, but with what you're doing, I'd suggest you go about it this way.** And actually that was more helpful than having looked through some of the literature, which was more broad-based, which was more generalized in terms of dissertation proposals. 1A
A3

I: So the dissertation proposals that you came up with weren't as comparable to what you were doing?

D: Right.

I: Than getting direct feedback from someone who knew what you were doing?

D: Exactly

I: That makes sense. Is this different than how you usually go about finding information? Let's say there's a similar situation, you need to find something new, you need to look for something, you need to find some stuff, and where do you usually go?

D: I think most of the scholarly work that I've been doing so far has been I'm directly **researching the literature**, whether it be through **looking at the databases online or just going through the catalog searches and maybe referencing lists that are like resource lists or the topic that I'm doing, looking at bibliographies.** So this is a little bit different because it's less what's a kind of literature and what's out there, but this is more process than theory, I guess. A4
A5
A7

Appendix D – Survey Questions

1. What is your primary departmental affiliation? (e.g., History, Women Studies, Biology)
2. What is your current status?
 - Lecturer
 - Assistant Professor
 - Associate Professor
 - Full Professor
 - Other
3. How long have you been a faculty member? (at any institution)
 - 0-5 years
 - 6-10 years
 - 11-15 years
 - 16 or more years
4. Please think of the most recent time when you needed to find out about something, or learn about something, for your scholarly work. Where did you search first?
5. Did you find what you needed at your first source, or did you look additional places?
 - My first source answered my question
 - Asked a colleague
 - Looked at a bookmarked website
 - Searched the web
 - Followed citations
 - Looked at my saved collection of journal articles
 - Searched electronic database
 - Looked at a book in my personal collection
 - Searched the library catalog
 - Asked a librarian
 - Browsed the library collection
 - Other:
6. Were you able to find the information you needed?
 - Yes
 - No
7. Is your initial source where you normally turn first in similiar situations?
 - Yes
 - No
8. How did you know you were done searching?
9. How many sources do you generally consult for a typical work related information search?
 - 1
 - 2-5
 - 6-10

- 11 or more
10. Which of the following do you use frequently as a source of information for your research/work?
(Please check all that apply)
- Books
 - Journals
 - Internet sources
 - Preprints
 - Attendance at conferences
 - Conference proceedings
 - Personal communications
 - Following citations
 - Other:
11. How do you stay current in your field? (Please check all that apply)
- Read current issues of journals
 - Read books
 - Read government publications
 - Scan abstracting tools
 - Personal communication & correspondence
 - Attend conferences
 - Attend seminars or classes
 - Edit or review peer papers
 - Participate in academic committees
 - Participate in citizen civic groups
 - Teach courses
 - Visit specific web sites
 - Other:
12. What tools do you use to keep track of sources of information that you've found? (Please check all that apply)
- Bookmarks
 - Personal bibliographic database
 - Physical filing system
 - Electronic filing system
 - Bibliographies in publications
 - Personal reference books
 - Other:
13. Do you prefer journal articles in print or electronic form?
- Print
 - Electronic
 - It depends on the article/journal
 - Other:
14. Is there anything else you would like to like to share about your information use within your work or research?

Appendix E – Survey Result Charts

Chart 1 – Survey Question 5:

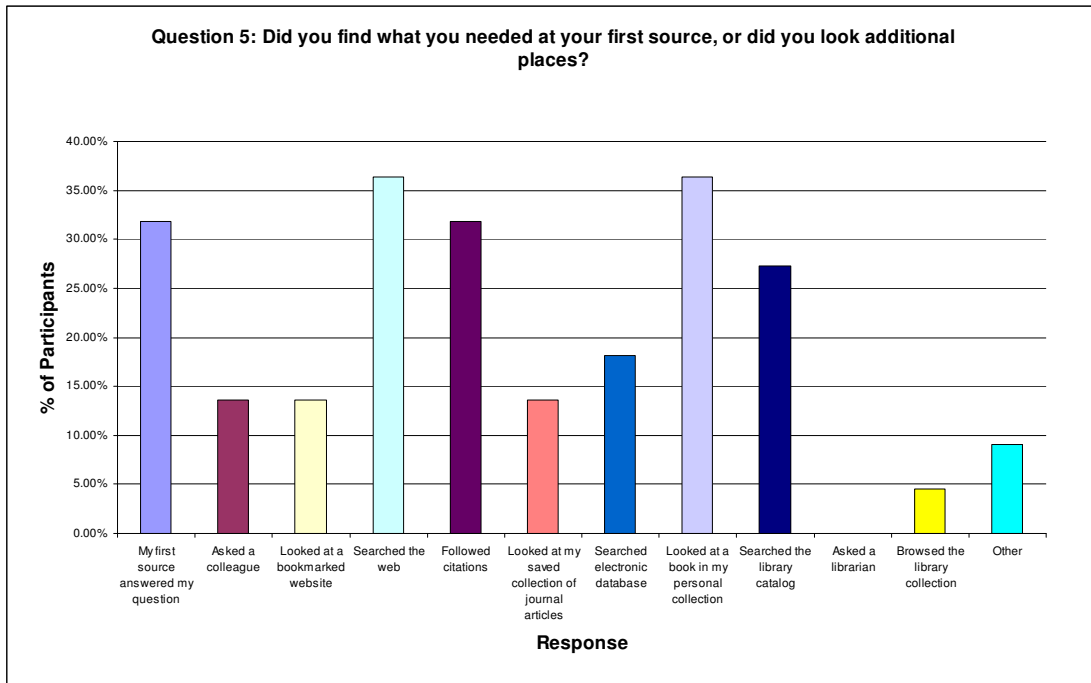


Chart 2 – Survey Question 9:

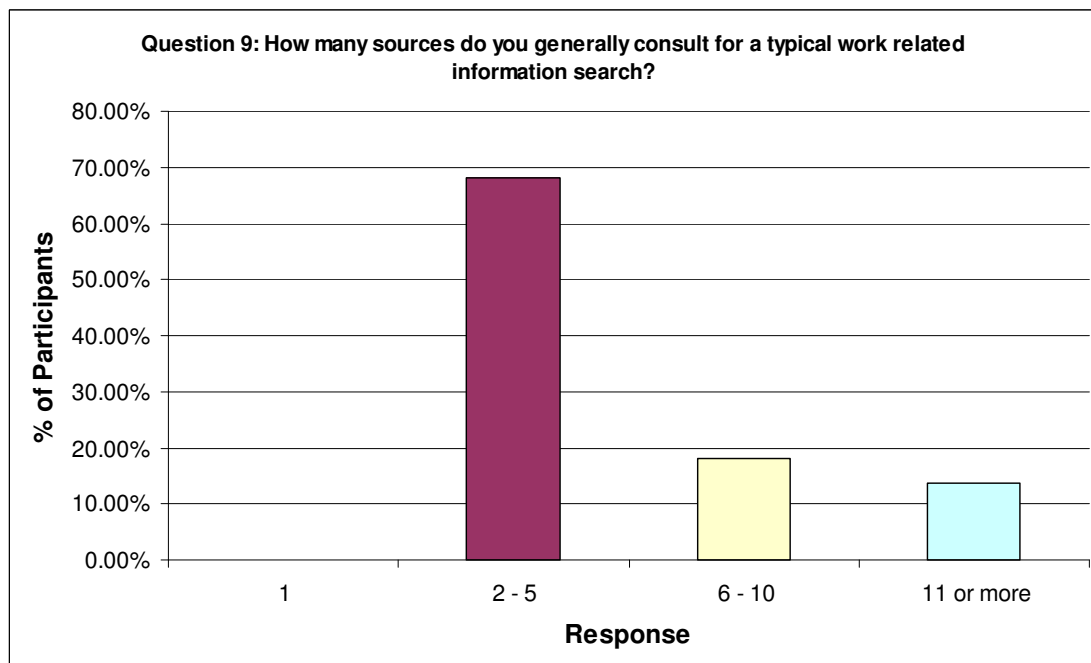


Chart 3 – Survey Question 10:

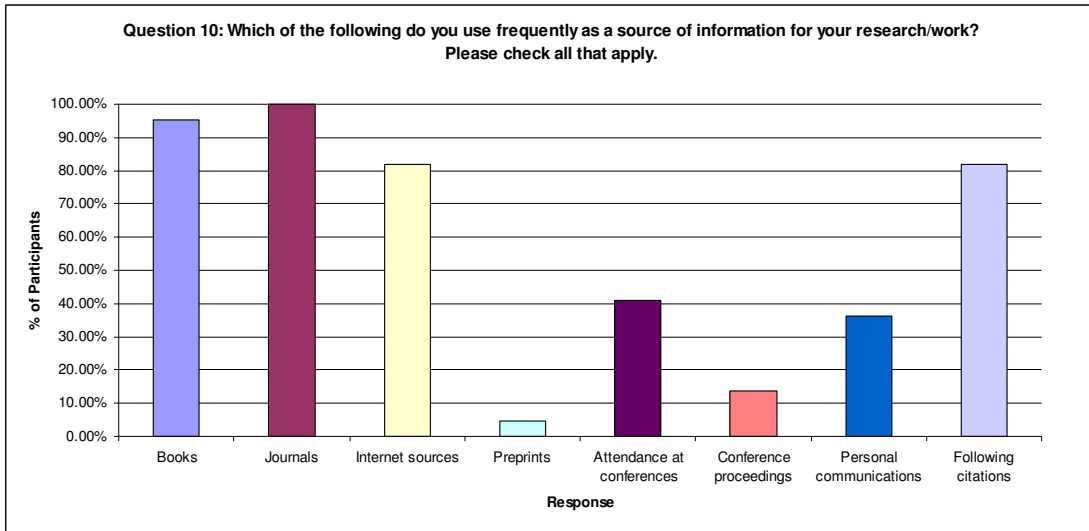


Chart 4 – Survey Question 11:

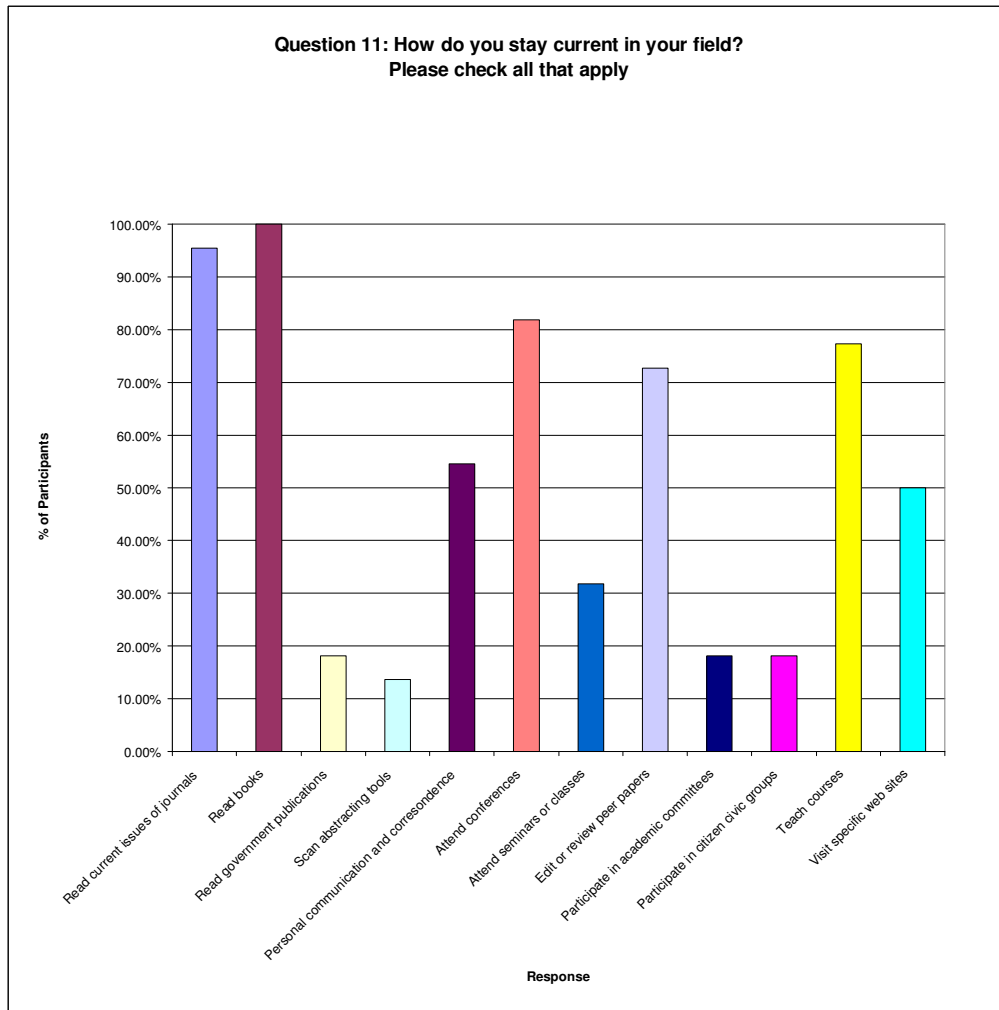


Chart 5 – Survey Question 12:

