

## Sense-Making the Information Confluence:

### The Whys and Hows of College and University User Satisficing of Information Needs

#### FINAL PROJECT PERFORMANCE REPORT

Brenda Dervin, Principal Investigator  
and  
CarrieLynn D. Reinhard, Senior Research Assistant  
*Ohio State University*

**AWARD #:** LG-02-03-0062-03.

**AWARDEE INSTITUTION NAME:**

School of Journalism & Communication [now School of Communication]  
The Ohio State University

**INTERIM OR FINAL REPORT:** Final report

**PERIOD COVERED BY THE REPORT:** December 31, 2003 to October 31, 2006

**DATE OF SUBMISSION:** January 31, 2007

**PROJECT DIRECTOR NAME AND TITLE:**

Dr. Brenda Dervin, Principal Investigator  
Full Professor, School of Communication  
Joan N. Huber Fellow in Social & Behavioral Sciences  
The Ohio State University  
PHONE: 614-286-2514  
EMAIL: [dervin.1@osu.edu](mailto:dervin.1@osu.edu)

**TABLE OF CONTENTS**

**pages**

COVER PAGE	1
PROJECT PURPOSE	2
ACTIVITIES AND PRODUCTS	
PHASE I: Project Overview, The Three-Field Dialogue Project, State-of-the-Art Reviews	3-7
PHASE II: Sense-Making Online and Phone Interview Study	7-13
PHASE III: Focus Group Interview Study	14-18
PHASE IV: Semi-Structured Interview Study (combined with PHASE III above)	in above
IMPACTS: REPORTS, PUBLICATIONS & PAPERS	18
IMPACTS: WEBSITE TRAFFIC & OTHER OUTCOMES	19-20
APPENDICES	
A: Table listing reports, publications, and presentations produced to date	A-1 to A-2
B: Publications and presentations from the OSU team	B-1 to B-2
C: Publications and presentations from the OCLC co-investigator team	C-1 to C-2
D: PHASE I report table of contents	D-1
E: PHASE II report table of contents	E-1 to E-2
F: PHASE III report table of contents	F-1
G: PHASE IV report table of contents	G-1
H: OSU website hits and downloads chart (in online version of performance report only)	H-1 to H-4
I: OCLC project outcomes report (in online version of performance report only)	I-1 to I-7

## PERFORMANCE DESCRIPTION

### PROJECT PURPOSE

The original proposal for this project had a two-part focus drawn from a lengthy literature review summarized as follows in the proposal abstract:

*Massive amounts of research have studied electronic information use -- who the users are, what they use, and where they get access. Yet, LIS researchers and practitioners increasingly agree that research has failed to serve practice -- system design or service. The primary reason given is contradictions in research findings. One explanation for the chaos is that research has not been making sense of user diversities because it has not given sufficient attention to user whys and hows. The second is that there are yawning gaps in how different research users -- practitioners, researchers, and theorists -- look at research.*

The challenge that this project took on then was:

*...that research will better inform practice if we: a) conduct research that links user whys and hows to specific moments of use of specific features of systems; and b) bring diversities of research user interpretations to bear.*

This two-part mandate was executed by:

- 1) Applying established procedures for dialogue to identify multiplicities of interpretations relating to user studies and applications of user research to system service and design from theorists, researchers, and practitioners; and,
- 2) Conducting a four-phase empirical study of users with: Phase I focused on literature reviews and charting and accounting for perspective disagreements; Phase II consisted of an online and phone interview study of 400 randomly selected college and university faculty and student users from central Ohio institutions of higher education; Phase III consisted of focus groups with sub-sets of that sample; and Phase IV conducted structured observations with sub-sets of the PHASE III sample.

The overall aim, then, of this multi-phase project was to focus not only on centralities in findings and interpretations but also on diversities and to develop boundary bridging concepts that might enable more effective application and collaboration across researchers and practitioners in fields doing user research -- primarily LIS, HCI, and COMM -- in both system design/service and research.

The project was implemented by two research teams -- one at OSU's School of Communication headed by the project's principal investigator Brenda Derwin. The second at collaborating institution -- the Online Computer Library Center, Inc., Office of Research, at which Lynn Silpigni Connaway and Chandra Prabha served as co-investigators. Total project costs were: \$1,153,767 - \$480,543 (41.7%) IMLS funded; \$353,810 (30.7%) funded by in-kind contributions from OSU; and \$319,414 (27.7%) funded by in-kind contributions from OCLC.

For the original proposal abstract, narrative, literature review notes, and references go to:

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_proposal\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_proposal_list.html)

### ACTIVITIES AND PRODUCTS

In presenting the description of activities and products below, descriptive sections are presented in standard Arabic font; major findings in **bold**; and commentary by investigators in *italics*. This report incorporates all activities from both research teams. A copy of the independently-submitted OCLC outcomes report is available in APPENDIX H in the online version of this PERFORMANCE REPORT only.

**PHASE I:****Project Overview, The Three-Field Dialogue Project, State-of-the-Art Reviews**

The purpose of the PHASE I REPORT was defined by its OSU editors (Dervin, Reinhard, Adamson, Lu, Karnolt & Berberick) as:

- \* providing a project overview, focusing in particular on Dervin's Sense-Making Methodology and its use as the primary methodological framework for all project phases;
- \* reporting in detail the activities carried out to meet the first mandate specified in the original project proposal -- bringing to bear multiple interpretations to the conduct and application of user studies;
- \* detailing the literature reviews also included in the original proposal mandate as another approach to surrounding multiple perspectives.

The specific activities of PHASE I are detailed below. See APPENDIX D for table of contents of the PHASE I report. For the full PHASE I report, go to:

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_I\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_I_report_list.html)

I-1. Sought input from two advisory committees -- local and international -- focusing on how advisors saw users, user research, each other and the applications of user research to system service and design. These inputs heavily informed project activities.

\* LOCAL ADVISORS were 31 academic and public library directors or their representatives from institutions serving the users who constituted our PHASE II sample.

\* INTERNATIONAL ADVISORS were 100 top-level academic and practitioner experts from the 3 fields most involved in user studies -- library and information science (LIS), human computer interaction (HCI), and communication (COMM).

For the rosters of two committees, go to:

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/PHASE\\_I/PH\\_I\\_front\\_IAC\\_bios.html](http://imlsproject.comm.ohio-state.edu/imls_reports/PHASE_I/PH_I_front_IAC_bios.html)

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/PHASE\\_I/PH\\_I\\_front\\_LAC\\_bios.html](http://imlsproject.comm.ohio-state.edu/imls_reports/PHASE_I/PH_I_front_LAC_bios.html)

I-2. Conducted a three-field dialogue focusing on how researchers and practitioners (designers, administrators, service providers) in the 3 fields -- LIS, HCI, COMM -- saw: a) big unanswered questions about users; b) the strengths and challenges of different disciplinary approaches to user research and potential cross-field collaboration; and c) the strengths and challenges of applying user researcher to service, design, and practice and the potentials for improvement. The specific activities in the dialogue included:

I-2a. Collected 114 anonymous de-identified interviews from local and international experts in the 3 fields. Prepared these interviews in a database with permission from anonymous informants to make database widely available.

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_I\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_I_report_list.html) (CHAPTER I and II)

I-2b. Invited a diverse set of faculty and students in LIS, HCI, and COMM to read and comment on the I-2a interviews in impressionistic essays focusing on what the interviews said to them about the challenges of user studies and applications. 48 faculty, graduate students, and practitioners responded with essays that have been edited and made available online.

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_I\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_I_report_list.html) (CHAPTER III)

[http://imlsproject.comm.ohio-state.edu/DIALOGUEessays/AA\\_ESSAYwebGRID.html](http://imlsproject.comm.ohio-state.edu/DIALOGUEessays/AA_ESSAYwebGRID.html) (the essays)

I-2c. Made I-2b available on a continuing basis for use by individual researchers and practitioners as well as by class instructors.

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/PHASE\\_I/PH\\_I\\_CH\\_III\\_apply.html](http://imlsproject.comm.ohio-state.edu/imls_reports/PHASE_I/PH_I_CH_III_apply.html)

I-2d. Proposed, had accepted, and conducted a panel session at ASIST2006 (November 2006) focusing on the 3-field dialogue. Participants included: Karen Fisher (University of Washington) and Carol Tenopir (University of Tennessee), representing LIS; Andrew Dillon (University of Texas-Austin) and Lorraine Normore (University of Tennessee), representing HCI; and, Donald Case

(University of Kentucky) and Brenda Dervin (Ohio State University), representing COMM. A follow-up full day pre-conference working symposium is in the works for ASIST2008.

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/asist06\\_panel\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_papers/asist06_panel_list.html)

I-2e. Proposed and had accepted a one-day workshop for the INTERNATIONAL COMMUNICATION ASSOCIATION (May 2007) also focusing on the 3-field dialogue. Participants include, among some 30 others, these active ASIST members: Brenda Dervin (Ohio State University); Donald O. Case (University of Kentucky); Michel Menou (University College, London, UK); John Richardson (University of California - Los Angeles).

<http://imlsproject.comm.ohio-state.edu/ica07workshop.pdf>

I-2f. Tentatively planned is a submission of a panel focusing on the dialogue to SIG/CHI of ACM for 2008. The long-range plan is to seek international funding for a symposium on communicating across field and research-practice divides to make user studies matter.

I-2g. Published a systematic thematic analysis of the I-2a interviews that documented how views across field and research-practice diverge more than converge and, at the same time, the converge on a pulsing interest in crossing these divides.

<http://informationr.net/ir/12-1/paper286.html> (full paper)

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/osu\\_IR01.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/osu_IR01.pdf) (abstract)

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/asist06\\_panel\\_infoR\\_01themes.html](http://imlsproject.comm.ohio-state.edu/imls_papers/asist06_panel_infoR_01themes.html) (thematic categories)

I-2h. Published a commentary essay based on literature reviews focusing on the challenges of communicating across disciplinary and research-practice divides; and, specifically, the need to change research practices so they not only focus on knowledge-production but also on research as communicating.

<http://informationr.net/ir/12-1/paper287.html> (full paper)

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/osu\\_IR02.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/osu_IR02.pdf) (abstract)

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/asist06\\_panel\\_infoR\\_02quotes.ppt](http://imlsproject.comm.ohio-state.edu/imls_papers/asist06_panel_infoR_02quotes.ppt)  
(pedagogical PowerPoint)

I-2i. Major findings from the Three-Field Dialogue Project:

**A brief enumeration of findings from the input from the two advisory committees; from the Three-Field Dialogue Project; and, from the set of impressionistic essays follows:**

**\* Most of the informants agreed about the problems -- we know too little about users; we need to find ways to collaborate in user studies across disciplines and across research-practice divides; we need to more effectively apply research to service design and practice; the emerging electronic confluence introduces more challenges, not only in understanding users, but in understanding each other.**

**\* There was extraordinary diversity in views across fields and across the research-practice divide. Each saw the other as not understanding and not reaching out to them.**

**\* When it came to identification of specific problems -- e.g. Is Google a threat? -- there was little agreement except within relatively homogeneous field groupings. This is shown, for example, in the OCLC MEMBERS COUNCIL survey, enumerated below as I-3, where LIS practitioners agreed for the most part that they thought it was. But not all LIS experts agreed and a substantial number of the COMM and HCI experts disagreed.**

**\* Most presented few solutions and those who did rarely agreed even within relatively homogenous groups.**

**\* Almost all wanted to collaborate across divides but agreed that communicating across these divides is hard, hard, hard.**

**\* The Three-Field Dialogue project evidenced a great deal of enthusiastic response as evidenced by the number of participants listed above, most of whom contributed without recompense. The panel session at ASIST2006 also brought in a standing-room only audience of about 250.**

**\* One of the purposes of the entire project was to develop boundary bridging concepts useful in both understanding users and in crossing the divides between fields**

and between researchers and practitioners whose work focuses in whole or part on understanding users. It is fair to say that the important boundary bridging mandates to emerge from PHASE I could be summarized as "invent new communicating options." It is clear that we need alternative practices and procedures for communicating expert to expert.

I-2j. Commentary by Dervin on the Three-Field Dialogue Project

*\* Originally it was planned that input from the two advisory committees (listed in I-1 above) would provide pinpointed directions for the research phases of the project. However, early on it was clear that the lack of convergence was much greater than anticipated. Further, to the communication scholar's eye, it was clear that addressing the lack of convergence was not going to simply be a matter of more communicating but rather of changing how we communicate. In order to fully explore the ground for this conclusion, the OSU team implemented a much larger dialogue project than originally planned, relying on a great deal of volunteer service. Focusing on the problematics of communicating across divides became the important thrust of the Three-Field Dialogue Project that is now an on-going project with the eventual hope of launching an international working symposium focusing on communicating across field and perspective divides in order to help make user studies matter.*

*\* Originally, too, it was planned that the total number of advisors for the project would be about 40-60 maximum instead of the 131 we finally consulted (as listed in I-1 above). We increased the number of advisors because we found that, in order to implement the PHASE I mandate for attending to across field and perspective differences effectively, we needed more diverse inputs. Based on these understandings, we proceeded to a much more formalized approach to examining the strengths and challenges of communicating about users and user research. This formalized activity is described as activity I-2 above, involving a total of 114 anonymous interviews followed by 48 authored essays and 2 major academic association panels/symposia, with more planned for the future.*

I-3. Conducted a survey of the OCLC Members Council and the LIS-field members of the OCLC Board of Trustees. 34 responded in all. As reported by OCLC co-investigators Connaway and Prabha, the survey focused on what informants saw as the biggest challenges to serving users well, particularly in the midst of electronic proliferation; what understandings of users would help LIS professionals handle the challenges better; whether researchers and practitioners look at users differently; and what research would most help improve LIS services.

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_I\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_I_report_list.html) (CHAPTER IV)

I-3a. Major findings from the OCLC survey, as detailed by Connaway and Prabha:

**\* This group of practitioners believed that Google is taking away users from library resources and services.**

**\* Since fewer users are availing themselves of library resources, these practitioners wanted to know how users look for and get the information they need.**

**\* Google seems to have heightened users' expectation for a standard interface. Thus these practitioners wanted to create and present Google-like interfaces to meet the expectations of their users.**

**\* These practitioners saw a chasm between how researchers define and address problems and the problems they as practitioners encounter in serving the information users.**

**\* Their comments suggested a disconnect between librarians and their user communities which was expressed as "How do users look for information?"**

**\* The communication rift between research and practice remains and was felt in both communities.**

**\* Practitioners raised some of the very questions addressed by this study as topics on which practitioners need information: more nuanced portraits of user information seeking, and specific evaluations of library systems.**

I-3b. Commentary by Connaway and Prabha on the OCLC Members Council survey

*\* Researchers and practitioners should collaborate in open dialogue during each phase of future research processes -- design, implementation, analysis, and dissemination of results, with a focus on the information users' behaviors and preferences.*

I-4. Completed a set of literature reviews addressing issues that were repeatedly raised in the processes of getting diverse inputs as described above. The four reviews, all already published or in press are described briefly here in terms of their importance to this project. Full citation and linking information is provided in APPENDIX B (OSU team citations) or APPENDIX C (OCLC team citations).

FROM THE OSU TEAM:

I-4a. Focusing on emotions and information seeking. One could say that there is an "affective" revolution emanating from both researchers and practitioners in our three fields. Certainly, the role of emotions was a major topic in the I-2a interviews. This chapter, by Dervin and Reinhard (2006) in a soon-to-be-released volume from Information Today, pursued two purposes: one was an empirical analysis using PHASE II data that will be discussed below in the section on the PHASE II study; the second was a literature review focusing on how emotions have been conceptualized in multiple ways in relationship to information behavior.

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/osu\\_emotions.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/osu_emotions.pdf) (abstract, lit review graph and footnote, with publisher permission)

I-4a1. Commentary by Dervin on the emotions and information seeking literature review

*\* The importance of the literature review was that it disentangled a number of overlapping concepts that have been used in user studies (in all 3 fields) with such varying definitions that when researchers and practitioners attempt to talk about users and their "emotions," they are in fact talking about many different, sometimes contradictory things without being aware of it.*

I-4b. Focusing on special populations. In one of the many contradictions of the proliferation of the electronic age, library and information services are being asked to be more things to all people, to meet user needs in a "just-for-me" mode, and at the same time to serve the needs of special populations. This review by Dervin, Reinhard and Kerr (2006), published in the just released volume of Advances in Librarianship, examined the historical trajectory in LIS of attention to special populations and the bewildering current array of sub-groups being identified as "special." It then examines in some detail the literature focusing on the strengths, weaknesses, and contradictions of designing services oriented to special sub-groups.

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/osu\\_adv.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/osu_adv.pdf) (abstract, conclusions, with publisher permission)

I-4b1. Commentary by Dervin on the special populations literature review

*\* Much emphasis in the I-2a interviews above was placed on knowing the needs of an endless list of special populations. Clearly, from a communication perspective, the sub-group emphasis approach is better than no understanding of the specific circumstances of users. However, also from a communication perspective, it is neither an effective nor efficient approach, particularly when the new flexible technologies offer more responsive options. This chapter attempts to open up these issues.*

I-4c. Focusing on constructing dialogue across field and research divides. This review by Dervin, Reinhard and Shen (2006) is in the online journal Information Research, 12(2). It was originally delivered by Dervin as the keynote address at the Information Seeking in Context Conference, Sydney, Australia, July 2006. The paper reviews literature on the communicating problematics of crossing disciplines and perspectives.

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/osu\\_IR01.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/osu_IR01.pdf) (abstract, outline)

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/asist06\\_panel\\_infoR\\_01themes.html](http://imlsproject.comm.ohio-state.edu/imls_papers/asist06_panel_infoR_01themes.html) (theme categories)

I-4c1. Commentary by Dervin on the constructing dialogue literature review

*\* One of the main points in this essay is that experts -- both researchers and practitioners -- are inherently focused on getting right or best answers to situations. This biases communication processes toward persuasion and away from understanding. The authors call for establishing different modes of communicating -- both procedural and structural -- when the goal is understanding other researchers/practitioners and gleaning from their offerings something of potential utility for one's own circumstances. In the long run, it is expected that this on-going project will arrive at specific recommendations for ways in which institutions can alter structures and change allocation of resources in order to improve understanding across divides.*

FROM THE OCLC TEAM

I-5c. Focusing on the satisficing of information needs. This paper by Prabha, Connaway, Olszewski and Jenkins (2007) appeared in the Journal of Documentation (January, 63,1). It is both an empirical paper presenting results from the PHASE III study (to be reviewed below) and a literature review of role theory, rational choice theory, and the satisficing concept as a framework for understanding users' decisions to stop searching for more information.

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/oclc\\_jd.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/oclc_jd.pdf) (abstract)

I-5c1. Commentary by Prabha, Connaway, Olszewski & Jenkins

*\* Today the information space is so saturated that it is not possible to conclude a search with certainty that all relevant information on a topic has been identified. This paper attempts to understand how users know when to stop.*

**PHASE II:****Sense-Making Online and Phone Interview Study**II-1. Synopsis of the PHASE II study as presented in PHASE II report

Phase II was the first of the three empirical studies completed in this project. The table of contents for the PHASE II report is included in APPENDIX E. Briefly, the parameters of the study as reported in the PHASE II report by its OSU editors (Dervin, Reinhard, Kerr, Song & Shen) were as described below.

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_II\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_II_report_list.html)

(Executive Summary and 10 chapters)

II-1a. PURPOSE: An in-depth study combining results from an online survey and follow-up phone interviews with college and university faculty and students focusing on how they went about satisficing their information needs. Particular focus was placed on pitting academic rank (faculty, graduate student, undergraduate) versus situation (5 different situations of seeking sources of input for each informant) as predictors of a roster of 236 specific measures of information seeking and use. The working hypothesis was that situation would be a stronger predictor but academic rank would predict particularly in interaction with situation. Further, the analyses incorporated a test of significances coming from SUBJECTS in order to get a handle on where untapped patterns carried around by individuals accounted for variance not accounted for by our other analyses. In these instances, "carried around by individuals" could mean many things. For example: attributes usually ascribed to individuals (e.g. some demography, personality); or attributes ascribed to individuals because of the structures in which they live (e.g. some demography, societal role); or living circumstance differences pertinent to each individual's current lived experiences.

II-1b. SAMPLE: The primary sample for the study was drawn from the population of college and university faculty, graduate students, and undergraduates in the 44 accredited institutions of higher education in central Ohio, located within 100 miles of Columbus. Reason for the geographic restriction was that this sample was to serve as the basis for PHASE III and PHASE IV sampling which require travel to each institutional site. Three different samples were drawn, one each for faculty, graduate students, and undergraduates. Carnegie classes were used as stratification control to assure that each population was sampled in proportion to its existence in three major institutional types -- undergraduate only, undergraduate and master's level, and doctoral level.

The sampling by faculty, graduate student, and undergraduates was disproportionate, aiming for 100 each and obtaining 102, 100, and 100 respectively. When the sample was designed it was expected that email sampling would require 5-10 contacts to obtain one informant. Because of the radical changes in the email environment between study design and fielding -- SPAM controls, email avalanches, etc. -- the actual number of contacts required was 66.9. Despite this, the number of random factors operating was such that we concluded that the sample was suitable for our purposes. Demographic and other checks confirmed this. A 4th sample was drawn -- of netLibrary subscribers across all 44 institutions, regardless of academic rank. This random sample yielded 107 netLibrary subscribers. This sub-sample is not included in the predictive analyses of the PHASE II report but is compared to the primary sample in the PHASE II chapter on sampling. The final sample for the PHASE II report included 307 informants.

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_II\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_II_report_list.html) (CHAPTER II)

II-1c. INTERVIEWING: Interviewing proceeded in basically four stages: contacts with potential informants; online survey; phone interviews; and, reinterviewing. Each is described briefly in turn.

\* CONTACTS WITH POTENTIAL INFORMANTS: IRB approval was obtained at Ohio State for all procedures. Potential informants were sent an invitation letter and told they would earn \$40 if they completed both the online and phone interview. When they responded they were assigned an online alias and password. Once they completed the phone interview, they were contacted again and payment was arranged. In all it took 35,764 contacts by email and phone to deliver the final phone interview sample of 409 informants, an average of 87.4 per final informant.

\* ONLINE SURVEY: The survey asked informants to describe 5 recent situations in which they sought sources of input: a troublesome academic situation, a scholarly/research situation, a troublesome personal situation, an academic situation requiring mostly electronic sources, and a personal situation requiring mostly electronic sources. For each situation informants were asked to indicate which of a roster of 25 sources of input they used and the extent to which they accessed the sources electronically. The next section of the online survey asked informants to provide a profile of their frequency of use of electronic sources in the past 6 months for academic and personal life situations. The online survey concluded with a demography section. The online survey took informants an average of 20 minutes to complete. 477 informants completed the online survey; of these 409 went on to complete the phone interview.

\* PHONE INTERVIEW: The phone interview focused only on the 5 recent situations asking informants to describe in-depth: a) how they saw each situation; b) their big questions in each situation, whether they got answers, and if not, what stood in the way; c) their big learnings in each situation and how the learnings helped; d) the most important helps they sought in each situation, whether they got them, and if not, what stood in the way; and e) the sources they turned to for input in each situation, how the sources helped, whether they got all the help they wanted, and, if not, what stood in the way. The phone interview took an average of 76 minutes to complete. 409 informants completed the interview. All interviews were transcribed and edited using standard quality control procedures. The resulting qualitative data base constituted 4666 pages of single-spaced text.

\* REINTERVIEWING: Because of management and training difficulties in the early months of fielding -- April and May 2004 -- a substantial number of the phone interviews required reinterviewing to fill-in answers to questions interviewers neglected to ask, or to flesh out answers where interviewers did not probe sufficiently. Using primarily volunteered resources, 243 of the 409 informants in both the primary and netLibrary samples were reinterviewed by phone or email. The average error count per informant was decreased from 7.2 to 2.6.

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_II\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_II_report_list.html) (CHAPTER III)

II-1d. CODING AND CONTENT ANALYSIS: While other analyses from this database will make substantial use of thematic approaches to analyzing informant narratives, the analyses in the PHASE II report all rest on quantitative analyses of the qualitative dimensions of informant responses. Content analytic procedures were used in this process with standard quality control measures. All final interjudge coding reliabilities were .90 or above between two "master" coders

after correction for chance agreement. A total of 36 conceptual variables were coded using 236 specific content analytic measures, as shown in the table below.

FOCUS OF CHAPTER...	# conceptual variables	# content analytic measures
VI. How our sense-makers saw their situations	4	26
VII. Questions our sense-makers asked in their situations	9	65
VIII. What our sense-makers learned in their situations	8	38
IX. The helps our sense-makers sought in their situations (and sometimes got)	6	39
X. The sources of input our sense-makers turned to in their situations	9	68
	36	236

Within the framework of the application of Sense-Making Methodology, all 236 of these measures were defined as different aspects of information seeking and use. The coding framework was drawn from the methodology's use of a central metaphor that conceptualizes sense-makers as making sense in time-space moments based on how they see their situations, what gaps they see themselves as needing to bridge, what learnings they are reaching for, what helps they seek, and what sources they see as appropriate to bring to bear on their journey. This way of looking at sense-makers is defined in the methodology as based on human universals.

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_II\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_II_report_list.html) (CHAPTER IV)

II-1e. STATISTICAL MEASURES: The unit of analysis for all statistical measures in the PHASE II report was 1522 informants-in-situations: the 307 informants x 5 situations each minus 13 missing situations. A 3 x 5 repeated measures design was used to analyze the predictive strength of academic rank acting alone, situation acting alone, the interaction between the two, and subjects (i.e. informant) variance significances not tapped by the other measures. As noted in II-1a above, significant subjects variance could have multiple meanings but our purpose for testing it was to open up possibilities for further investigation.

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_II\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_II_report_list.html) (CHAPTER V)

II-1f. DESIGN OF THE PHASE II REPORT: The design of the PHASE II report was deliberately structured so as to provide readers -- both researchers and practitioners -- with documentation of the PHASE II study with sufficient nuts-and-bolts details that the documentation can serve as a basis for ruminations and investigations. A great many more findings were presented than can possibly be summarized. It is hoped that readers will dabble in sections that interest them and ask a host of "how come" questions. The study was designed to open up new terrain and can be seen from the brief review of findings below and in PHASE II EXECUTIVE SUMMARY, it has succeeded in doing so.

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_II\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_II_report_list.html) (CHAPTER I)

II-1g. STATISTICAL PATTERNS IN FINDINGS: PHASE II presents detailed statistical results in 5 results chapters (as shown in the table above). An overview of the broad stroke statistical significance patterns in the findings is displayed immediately below:

RESULTS REPORTED IN CHAPTER....	# measures to be predicted	% of MEASURES PREDICTED SIGNIFICANTLY BY....			
		THE 5 SITUATIONS	THE 3 ACADEMIC RANKS	SITUATION x RANK	SUBJECTS VARIANCE
<a href="http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_II_report_list.html">http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_II_report_list.html</a>					
VI on SITUATIONS	26	100.0%	30.8%	53.8%	38.5%
....situations: nature of situations faced	8	100.0%	62.5%	50.0%	12.5%
....situations: assessments of situation-facing barriers and challenges	18	100.0%	16.7%	55.6%	50.0%
VII on BIG QUESTIONS IN SITUATION	65	66.2%	32.3%	23.1%	67.7%
....questions: nature of questions asked	33	87.9%	30.3%	24.2%	75.8%
....questions: relevance judgments explaining why answers incomplete	32	43.8%	34.4%	25.0%	59.4%

<b>VIII on BIG LEARNINGS IN SITUATION</b>	<b>38</b>	<b>73.7%</b>	<b>26.3%</b>	<b>18.4%</b>	<b>55.3%</b>
....learnings: focus of learnings	32	71.9%	28.1%	21.9%	53.1%
....learnings: helps from learnings	6	83.3%	16.7%	0.0%	83.3%
<b>IX on BIG HELPS SOUGHT IN SITUATION</b>	<b>39</b>	<b>53.8%</b>	<b>17.9%</b>	<b>12.8%</b>	<b>61.5%</b>
....helps: nature of helps sought in overall situation	7	85.7%	57.1%	14.3%	100.0%
....helps: relevance judgments explaining why got less than all the help wanted	32	46.9%	9.4%	12.5%	53.1%
<b>X on SOURCES OF INPUT USED</b>	<b>68</b>	<b>80.8%</b>	<b>36.7%</b>	<b>54.5%</b>	<b>97.1%</b>
....sources: # and kinds of sources used	27	88.9%	55.6%	66.7%	96.3%
....sources: helps from sources	6	100.0%	0.0%	50.0%	100.0%
....sources: relevance judgments explaining why got less than maximum help from sources	33	69.7%	30.3%	45.5%	97.0%
<b>TOTAL ACROSS ALL MEASURES</b>	<b>236</b>	<b>73.3%</b>	<b>30.0%</b>	<b>33.1%</b>	<b>69.9%</b>

**II-1h. Major themes in the statistical findings reported in the PHASE II REPORT**

Space limitations here allow covering no more than a surface level of the findings from the PHASE II report. The report was structured to provide readers -- both researchers and practitioners -- with an abundance of input to serve further investigations and discussions. The intention was to provide as full as possible a nuts-and-bolts documentation of the study -- its conceptualization, methods, and results. There is much to still be mined, both qualitatively and quantitatively, and a number of additional analyses are currently underway intended for conference paper and journal submission. A broad brushstroke of the major findings to date follows:

**\* Situation was by far the best predictor across all information seeking and use measures. Of 236 measures, situation predicted on average 73.3%.**

**\* This compared to only 30.0% for academic rank and 33.1% for academic rank interacting with situation. Further: a) of the 33.1% predicted by the interaction, more than half were measures for which rank alone had no significance; and b) of the 30.0% predicted by rank alone, more than one-third were rank differences that held only in specific situations. In general then, not only was rank a weak predictor on its own, rank predicted best only within specific situations.**

**\* Not unexpectedly, subject variance came in high -- 69.9% of all 236 measures predicted significantly. On the surface this suggests that informants showed some consistent patterns across situations that were not tapped by either situation and/or rank as the OSU team measured these variables. However, as noted above, the most we can extract from these figures is that unidentified patterns carried around by informants at the time of the interview were operating and explained differences not explained by either situation and/or rank. These informant patterns may be contextual in the sense of being pertinent at the time of the interview, or structural attributes binding informants such as some demographic attributes (e.g. social class, race) or attributes of the institutions in which informants resided; or individual differences such as personality and cognitive style factors and some demography (e.g. age).**

**\* Clearly, the results summarized above are enticing. For example, while rank never predicted as well as situation, it did best on nature of situation faced, nature of helps sought, and kinds of sources used. It was very weak, however, in predicting situation evaluations or, for that matter, evaluations of any kind. In essence then, we got a better handle on the hows of academic rank sense-making of information needs, but not the whys.**

**\* The number and complexity of the within situation rank differences was also enticing. As but one example, we found that faculty were more likely to blame inadequacies in information for preventing them from getting maximum help from sources in situation 3 (troublesome personal situations), but it was graduate students who did so in situation 2 (scholarship, research) and situation 4 (electronic use**

academic).

\* A very large number of specific findings were suggestive of potential lines for future inquiry. Some of these are already being pursued as journal topics. As but one example, all informant answers to what prevented getting complete answers and complete help were coded on the series of 31 measures called relevances, tapping what informants saw as the relevant criteria for judgment. The patterns in the findings suggested that these were least well predicted by situation and best predicted by unexplained subject differences.

\* Further, the very pattern of the SUBJECTS VARIANCE significance was enticing. In general, it showed stronger prediction levels for all why oriented measures (evaluations of situations, sources, learnings, and so on) than for what oriented measures. This suggests that we have a ways to go in understanding information seeking whys. The detailed findings presented in PHASE II open up a large number of avenues to explore.

II-1i. Commentary by Dervin

\* *The primary importance of the PHASE II analyses and the database on which it rests is that it provides an in-depth situated look at informant information seeking and use, making available not only to OSU researchers but others who will be invited to do further analyses a well collected data set for exploring many questions that a smaller database could not. In particular, few studies have been able to test systematically issues of situational versus structural versus contextual versus individual differences in information behaviors. The initial analyses from this study have made a beginning. The findings in the PHASE II report as well as those from other analyses already conducted on this data set confirm the essential need for understanding the situatedness of information seeking and use. At the same time the complexities in the data, particularly the interactions between rank and situation, and the force of the subjects variance significances suggest the need for not looking for simple answers. In essence, situation while important cannot be assumed to be a sole entry for understanding users. The over-riding mandate for user research in the next decade will be to begin to unravel how contextual, situational, structural, and individual factors account alone or in combination for information behaviors.*

\* *What this means for practitioners who serve one-on-one -- something that the best practitioners have always known -- is one can not make assumptions based on externally ascribed attributes. What it means for design is something that Dervin has explored in a number of papers (see CHAPTER I in PHASE II report). The flexibilities of the new technologies offer extraordinary potential for being able to address human universals in information behavior -- i.e. universals that address how sense-makers see themselves as moving through time-space. As but one example, the PHASE II results showed that academic rank alone predicted only 1 of 7 measures called "situation movement state" -- how sense-makers see themselves as stopped. Also, rank interacting with situation predicted only 2 of 35 possible within situation interactions. Essentially then, rank made little difference in how our informants saw themselves as stopped. Yet, prior Sense-Making studies have shown consistently the power of this measure to predict information behavior. If further analyses replicate this pattern with this data, then situation movement states offer a potential "human universal" useful for design of services and structures, one that adds to rather than replicate other strong explanatory factors.*

\* *If we intersect the PHASE I findings with PHASE II, we see a potential covering of boundary bridging concepts for user studies. The complexities in the PHASE II results are so many and so enticing that they do indeed provide many potential avenues to explore. But they also suggest that we all -- researchers and practitioners in different fields -- need to listen more systematically to users on their own terms because sharing these understandings of real user circumstances with each other may actually help us understand the different viewpoints we differentially bring to bear on our understandings of users. Thus, as a small example, if a practitioner brings forward a real case with details -- what the user said her experiences were, what she sought, and so on -- and then concludes "I saw her as limiting her search because he was too emotional, we then have an opportunity to see whether our perspectives agree with his*

*conclusions. Most of our exchanges involve us arguing solutions without case evidence or arguing conceptual concepts removed from the conditions of user lived experiences.*

*\* Finally, it is important to note that collecting the PHASE II data involved yeoman unexpected struggles -- in particular, the extraordinary number of contacts needed to deliver a random sample as originally proposed but when fielded in an increasingly chaotic email environment. The OSU team's assessment is that future efforts to deliver genuinely random samples (as opposed to samples created by statistical manipulations) will require personal snail mail letters and much more enticing honoraria.*

## II-2. Additional analyses completed on the PHASE II dataset

Two additional analyses have been completed to date on the PHASE II data. Complete citations and links are listed in APPENDIX B.

II-2a1. Focusing on emotions and information seeking. This chapter, by OSU authors Dervin and Reinhard (2006), in a soon-to-be-released volume from Information Today, pursued two purposes: one was a literature review that was commented on above in the report on PHASE I and the second was an empirical analysis using PHASE II data. The exemplar study examined how 409 informants-in-situations evaluated 2030 situations on a series of situational assessment scales that tapped "emotional" dimensions as found in the extant literatures on emotion. The authors then looked at how these situational assessments related to informants' reports of how much and how sources helped them. The study was executed via deep qualitative interviewing that incorporated some quantitative aspects, followed by systematic quantitative content and statistical analyses. Results suggested that the various emotional dimensions often collapsed and confounded in prior work are not operating in unified ways and that situational conditions make a difference in terms of which dimensions are activated and how. While the extant literature often pits the cognitive against the emotional, this study pointed to more complex and complementary possibilities.

### II-2a2. Commentary by Dervin on the emotions and information seeking analysis

*\* Given what is an apparent affective revolution in user studies and the attention paid to emotional issues in the PHASE I expert interviews, this study aimed to show how glossing over differences in how "emotions" are defined cloaks important patterns in information behavior. Informants made quite nuanced choices in how they saw their situations on a number of "emotional" dimensions with considerable variation between situations. Sense-Making as a methodology posits "emotions" as a bridge concept along with cognitions (e.g. learnings, conclusions). Looking down the road to possible uses of the flexibilities of the new technologies, emotions may well be another set of "human universals" that might enlarge our capacities to design systems and services to serve users better.*

II-2b1. Focusing on sources and how they help. This paper involved a detailed analysis of the 11,319 source-using instances the 409 informants in the PHASE II study reported using across their 2030 situations. Authored by Dervin, Reinhard, Kerr, Connaway, Prabha and Normore, both the detailed paper and poster that were displayed at ASIST2006 are available on the project website. The abstract is also available in the 2006ASIST proceedings. Main patterns in the results were as follows:

- \* Informants turned to an average of 5.7 sources per situation.**
- \* Source using patterns replicated prior studies with interpersonal sources most used. However, electronic sources began to approach the same levels in these results, confirming patterns emerging from other studies.**
- \* The average helpfulness evaluations of source encounters was high; no single category of sources was rated low in helpfulness across more than 75% of its sense-making instances, and no single category was rated high for more than 75% of its instances.**
- \* However, some sources were seen as more helpful than others on average across their source-using encounters. The top seven most helpful source categories**

were: electronic database systems; other libraries; own observations; journal articles and book chapters; internet search engines; academic libraries; and, library catalogues.

\* Some ways of being helped were seen by informants as more helpful than others, in particular: reached goals; journeying got easier; got started, motivated; got resources, tools; kept going, made progress; and, got connected.

\* Some ways of being helped were more likely to be used in low helpfulness encounters: got rest, pleasure; got pictures, ideas; and, to some extent, got human togetherness and got support.

\* The help qualities focused more on what is traditionally defined as getting specific answers - got directions, got hows, for example -- showed few differences.

\* The correlation between the percentages of source-using instances, with which help categories were used as judgments across all encounters, and the percentages used in only high helpfulness encounters was not significant although it showed a definite tendency toward negative. Thus, the least used criteria for judging helpfulness tended to be the most highly valued.

\* Very few zero entries were found on any sources for any help qualities. It would be fair to say that almost every category of source was evaluated on every help quality in at least a few instances. Further, each source category showed its own unique pattern of help judgments.

\* If one combines all the helping qualities not traditionally thought of as library functions (e.g. got support; got human connectedness; got centered; got control) the total indicated a large proportion of library-using instances were evaluated in these non-stereotypic ways.

\* The portrait of the results for electronic access sources also showed complexities. The five e-access sources seemed to fall into three categories: high information and relay providers (i.e. internet search engines, electronic database systems); high support providers (i.e. webdiaries, blogs; listserves, chatrooms); with personal webpages falling in between. At the same time, each of the electronic-access based resources showed its own complex pattern of being judged qualitatively by users.

#### II-b2. Commentary by Dervin

*\* This analysis was deliberately executed without using sophisticated data collapsing tools in order to allow the fine detail as presented by informants to show. Perhaps the most important thrust in the findings is they suggest that getting what is traditionally defined as "information inputs" is a necessary but not sufficient condition for informants judging a source encounter as highly helpful. In contrast, highly helpful encounters were ones where informants judged the input as having helped them move forward in their situations as they defined them. Further, while the pattern of findings supports some traditional stereotypes, the qualitative detail forces us to interrupt these. As one example, the findings do suggest that sources have particular roles in the information confluence -- some sources provide more interpersonal sustenance (e.g. family, friends, neighbors), some relaying functions (e.g. libraries, electronic databases), some informational input (e.g. libraries), some advice (e.g. professors, advisors, mentors), and some respite (e.g. television, museums, fiction books). However, this general support should not detract from the fact that the patterns in the findings showed virtually all sources being evaluated in all ways and that it was the helpfulness of the encounter that made the more important difference for users.*

*\* From a practice perspective, findings such as these support once again a pattern that has emerged from some 30 years of Sense-Making studies on information seeking and use. Whatever informants define "information" as -- and Sense-Making studies deliberately leave this free for informants to define -- they rarely see it as an end in itself. Institutions in the "information" business need to invent ways to link their products to the human dimensions of sense-making, in particular, serving in ways that services are seen as helping journey-facing. It is also important to note that despite fears expressed in some commentaries that libraries cannot hold their own in the*

*emerging electronic confluence, these data did not confirm that expectation -- library source-using instances were among the most highly rated and were evaluated in some unexpected ways.*

### **PHASE III & PHASE IV:**

#### **Focus Group Interview Study; Semi-Structured Interview Study**

These two phases of the project are reported together because their OCLC authors combined the datasets for purposes of extracting findings and conclusions. The table of contents for the PHASE III and PHASE IV reports are included in APPENDIX F and G, respectively.

#### III&IV-1. Synopsis of the PHASE III study as reported in PHASE III report

PHASE III was the second of the three empirical studies completed in this project. Briefly, the parameters of the study as reported by OCLC authors Connaway, Prabha and Dickey were as follows:

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_III\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_III_report_list.html)

III&IV-1a. PURPOSE: Researchers from OCLC (Online Computer Library Center, Inc.) had primary responsibility for the third and fourth phases of data collection and analysis: focus group interviews and semi-structured interviews. Seventy-eight subjects participated in the focus group interviews in March, April, and May 2005. The samples represented a population of faculty, graduate students, and undergraduate students at 44 colleges and universities of all types in a single geographic region. The OCLC research team performed complementary quantitative and qualitative analyses on these data and produced results useful both for researchers and practitioners. The focus group interviews provided the participants an opportunity to explain their information-seeking behaviors in the context of specific situations.

III&IV-1b. METHODS: Representative samples of library users at institutions of various Carnegie Classifications were assembled for the Phase III research. Faculty and graduate and undergraduate students from different Carnegie Institution types were recruited from 5 institutions. The possibility that students may not speak up in the presence of faculty led to the decision to form homogeneous focus groups of faculty, graduate students, and undergraduate students. Selection of institutions was based on the ability to assemble 10 to 12 participants from the faculty, graduate, or undergraduate population at that institution. In all, 3 faculty groups, 2 graduate student groups, and 3 undergraduate student groups were interviewed. Five different institutions were involved as follows: INSTITUTION A: a Carnegie-Class 7 public institution with an enrollment greater than 50,000 students, 3 focus group interviews were conducted – one each comprised of faculty, graduate students, and undergraduate students; INSTITUTION B: a private religious institution of Carnegie Class 3 with an enrollment of approximately 3000 students, 2 focus group interviews were conducted – one each comprised of faculty and undergraduate students; INSTITUTION C: a Carnegie-Class 5 public institution with an enrollment of 4,600 students, 1 focus group interview was conducted with graduate students; INSTITUTION D: a Carnegie-Class 6 public institution with an enrollment of 17,000 students, 1 focus group interview was conducted with faculty participants; INSTITUTION E: a Carnegie-Class 1 public institution serving 23,000 undergraduates, 1 focus group interview was conducted with undergraduate students.

III&IV-1c. INTERVIEWING: Connaway, as focus group moderator, used the following 4 situations to invite and encourage participants to share their information-seeking experiences: SITUATION 1: Think of a time when you had a situation where you needed answers or solutions and you did a quick search and made do with it. You knew there were other sources but you decided not to use them. Please include sources such as friends, family, professors, colleagues, etc. SITUATION 2: Have there been times when you did not use a library (university/college, public, etc.) and used other source(s) instead? SITUATION 3: Think of an academic situation where you needed answers or solutions and you did a thorough search (you did not take the first answer that you found). Describe the situation. SITUATION 4: If you had a magic wand, what would your ideal information system and services provide? How would you go about using the systems and services? When?

Where? Two investigators and a research intern were present at each focus group interview session. Each interview began with an opening statement, a brief description of the focus group interview process, and an opportunity for the participants to introduce themselves. The research intern, Carolyn Hank, audio taped the sessions, took notes, and labeled the cassettes for subsequent transcription. Chandra Prabha, in the role of observer, also took notes. The tapes were transcribed by the OSU team following standard quality control procedures used in qualitative research.

III&IV-1d. CODING AND ANALYSIS: Notes from each session were reviewed by each member of the research team. Each one initially manually coded from the notes. The resultant codes and the base notes were then compared for inter-coder consistency. In a few instances when discrepancy was noticed, a discussion provided additional insight towards eliminating the discrepancies. From this procedure, a final inter-coder reliability rate of 100% was obtained, and the final coding scheme was devised. The results were then electronically coded using the NVivo 2.0 software package, which facilitated analysis of the content.

III&IV-2. PHASE IV was the third of the three empirical studies completed in this project. Briefly, the parameters of the study as reported by OCLC authors Prabha, Connaway and Dickey were: [http://imlproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_IV\\_report\\_list.html](http://imlproject.comm.ohio-state.edu/imls_reports/imls_PH_IV_report_list.html)

III&IV-2a. PURPOSE: Semi-structured interviews were conducted one-on-one with a subset of 15 individuals who participated in the PHASE III focus groups. The data gathered in focus group interviews was thus augmented by data collected from the Phase IV participants' detailed descriptions of their information-seeking episodes. This final data set offered richer and more detailed portraits of participants' information-seeking and -searching behaviors in a number of specific contexts.

III&IV-2b. METHODS: The participants were selected from the pool of faculty, graduate students, and undergraduate students who had participated in the focus group interview sessions. At each of the 8 focus group interviews, 2 to 4 potential participants were invited to participate in one-on-one interviews that would take place at a location of their choice -- office, home or library. Prabha, the investigator who had the responsibility to lead research in Phase IV, observed the participation of all members of the focus group interviews. Members who excelled in communicating their information-seeking experiences and who represented highly specialized fields (such as music or cartography) were asked to participate in Phase IV. A total of 30 individuals were invited to participate in this phase of the project; 24 accepted, and 15 of those participated.

III&IV-2c. INTERVIEWING: In all, interviews were conducted with 5 undergraduates, 4 graduate students, and 6 faculty; they represented between them 9 different disciplines. The interviews were all conducted by Prabha using a basic interviewing guide which asked participants to relive or share 5 specific information-seeking situations: 1) How they went about preparing for a recent academic paper, proposal, or class assignment they had completed; 2) A current academic assignment in which they showed the investigator step by step how they planned to pursue the assignment; 3) A scholarly task that required them to consult mainly electronic sources; 4) A recurring situation in which they needed to seek electronic inputs; 5) Any favorite website to which they went to find answers pertaining to an area of personal interest or hobby. The research team (one researcher and one research assistant) met each participant at a location chosen by that participant. The research team ensured that each participant had a desktop or laptop and access to their campus network and the Internet for the interview. For those interviews that were conducted on library premises, a room that afforded privacy was reserved in advance. One faculty member chose to be interviewed in a home office, three faculty members asked to conduct the interview in their work places, and all other participants chose to be interviewed on library premises.

III&IV-2d. CODING AND ANALYSIS: Each interview was audio-taped and labeled for subsequent transcription. After transcription by the OSU team, the OCLC interviewer and a research assistant reviewed the transcripts several times to understand what the participants said and in what context. The transcripts were coded independently by one researcher and one research intern. The coded data were compared; discrepancies in coding were discussed and reconciled. In addition, the transcripts were coded using the NVivo software package (version 2.0).

III&IV-3. Major themes reported for the PHASE III study and PHASE IV study

As reported by Connaway, Prabha, and Dickey in the PHASE III REPORT, and by Prabha, Connaway, and Dickey in the PHASE IV REPORT, the results of the two studies were merged for the purposes of extracting major themes and conclusions. Among the major themes the authors extracted from their analyses were:

**\* Participants, regardless of role (faculty, graduate student, or undergraduate student) expressed a heavy reliance upon Google and other search engines and information sources.**

**\* These individuals used traditional library services, especially in more extended research situations; faculty and graduate students were more likely to report library use.**

**\* However, even those participants using libraries offered frequent criticisms of traditional library services, reported their use of electronic mediation to reach the services, and even suggested future modifications to them.**

**\* A subset of the data indicated that even though a majority of quick searches utilize Google as a first resort, context or the specific situation motivating the search influences the choice of sources. This is a clear indication of the need for motion portraits to describe user search strategies. In other situations presented during the focus group interviews, faculty responses expressed markedly different emphases. Faculty participants did credit Google, Amazon, and other web sources with ease of use and cited several specific positive features. However, the faculty interviews praised the virtues of the physical library collection, and considered credibility, authority, and trustworthiness as criteria when judging an information source. They also indicated they would continue the search process until reaching a point of saturation.**

**\* Specific reasons for participants' choosing the Internet as an information source included their desires for: a) familiarization; b) convenience; c) currency.**

**\* These participants provided rich information relating to the criteria they used for evaluating information sources, including the authority of a source.**

**\* They offered a surprisingly high valuation of the traditional library as a repository of information and authoritative sources**

**\* One "situation" probed by the focus group interviews was the "magic wand" scenario: how these participants envisioned an ideal information system. The participants' responses, though not generalizable to the population at large, offered suggestions for library practitioners and systems designers, including: a desire that library catalogs be easier to use; library catalogs that implement discovery and recommender services such as those offered on Google and Amazon; and library environments that resemble coffee houses and bookstores, with roaming staff and open gathering and study areas.**

**\* The following more general themes emerged regarding user search behaviors and what drives these behaviors: a) Users made contextually based, rational decisions as they carried out their information searches. b) Users chose a search strategy and a level of effort based upon their situational needs, and they differentiated between quick and thorough searches. c) Users were adept at doing searches for personal needs and often showed signs of having completely internalized the process. d) Different types of academic users showed different search behaviors in some contexts.**

**\* The following more general themes emerged regarding library catalogues and databases: a) The participants acknowledged the value of databases and other online sources to their information needs. b) Some users did not understand what resources a**

library holds, however, and often could not distinguish between databases held by a library and sources merely available online. c) In addition, participants believed that library OPACs are difficult to use; this belief was held by all types of participants, though it is especially strong among the undergraduate students.

\* The following more general themes emerged regarding library systems, services, and spaces: a) Users valued familiarization, convenience, currency, and authority, and embodied these values in their search strategies and behaviors. b) Many participants continued to value traditional browsing of library materials and praised the library as a space for authoritative and academic information. However, even these study participants offered some specific suggestions for re-envisioning the library services and spaces, including: more open spaces in the library, for study and social interaction; better signage and pathways in libraries, to assist browsing; more information literacy classes; roving library staff; enhanced delivery methods for library materials, such as drive-through pickup and drop off or deliveries to offices and homes.

\* Participants also spoke of enhancements and changes to the library's electronic resources. These included: Selective Dissemination of Information (SDI) services (participants did not use this term, but described this service concept), especially for electronic resources; eference available 24/7; expanded online sources, including that all print and other physical materials be made available online

\* Participants also desired more digitized sources of all kinds, including digitization of older literature, sheet music, and art images.

III&IV-4. Commentary by Connaway, Prabha & Dickey on PHASE III findings; Prabha, Dickey, and Connaway on PHASE IV findings

*\* Taken together these findings broaden the scope of earlier user research which tended to focus more narrowly on the whos and whats of information seeking, and to view users' information-seeking behaviors as static and habitual. Based upon the results of the PHASE III and PHASE IV studies, the authors Connaway, Prabha, and Dickey made recommendations for future LIS research and practice, as follows:*

*\* Future user research in LIS should more frequently adopt multi-approach methodologies and should consider the value of context-rich, grounded movement portraits of users' information seeking.*

*\* Library practitioners should incorporate innovations and enhancements to their library catalogs, including discovery and recommender services, in addition to streamlining the operation of their systems.*

*\* Library practitioners should consider the hows and whys of academic users' information seeking – specifically, the value they place on familiarization, convenience, currency, and authority – when designing new library systems, services, and spaces.*

III & IV-5. Additional analyses completed on the PHASE III and PHASE IV datasets

Two additional analyses were completed drawing on the PHASE III and PHASE IV datasets. Complete citations and links are listed in APPENDIX C.

III & IV-5a1. Focusing on the satisficing of information needs. This paper by Prabha, Connaway, Olszewski and Jenkins (2007) appeared in Journal of Documentation (January, 63,1). It included a literature review as reported in the section on PHASE I above. And, it included an empirical analysis drawing on the PHASE III dataset. The authors reported their major findings as: academic library users described both qualitative and quantitative criteria which led them to make rational choices determining when "enough" information satisfices their needs. The situational context of both the participants' specific information need and their role in academic society affected every stage of their search -- from the selection of the first resources, to ongoing search strategies, to decisions on how much information is enough.

III & IV-5a2. Commentary by Prabha, Connaway, Olszewski & Jenkins

\* *These findings broaden the scope of earlier user research that tended to focus on the more static views of habitual information-seeking and -searching behavior. This study applied a variety of theoretical frameworks to yield a richer understanding of user experiences.*

III & IV-6a1. Focusing on identifying serials user needs. This paper by Connaway and Prabha (2007) published in *Serials Librarian* (52, 1/2). It drew on both the PHASE III and PHASE IV datasets and consisted of conclusions drawn from preliminary analyses. The authors commented that the analyses identified how and why college and university information seekers meet their information needs.

III & IV-6a2. Commentary by Connaway and Prabha

\* *In the age of immediate gratification, in certain situations users may settle for information that is quickly and easily available instead of library sources that are considered more authoritative and trustworthy. Meeting user needs in the library environment requires updating library catalogs to implement discovery and recommender services that provide the associations and links that are available to users in other web-based environments and that meet these users' expectations of online systems and sources.*

**IMPACTS: REPORTS, PUBLICATIONS, AND PRESENTATIONS**

Per the agreement approved between OSU and IMLS in September 2005, the deliverables for the project were enumerated as:

- \* 4 reports, 1 for each project PHASE
- \* 1 final performance report
- \* 3 journal articles
- \* 3 conference papers.

The table in APPENDIX A lists the actual reports, publications, and presentations produced to date and indicates which are available online and which are being sent to IMLS as bound paper reports. The roster of products includes:

- \* 4 reports, 1 each for each project PHASE
- \* 1 final performance report from OSU incorporating all project activities by both research teams (the separate OCLC report submitted to the project PI was incorporated into the online version of the performance report as APPENDIX I).
- \* 1 book chapter; 5 journal articles (3 literature reviews, 1 empirical report, 2 combined)
- \* 1 conference poster-paper; 2 conference panel sessions; 5 conference PowerPoints
- \* 1 pedagogical PowerPoint

**IMPACTS: WEBSITE TRAFFIC AND OTHER OUTCOMES**

Project impacts from a research undertaking cannot be measured well by short run impacts. Crucial long run impacts include how much the work informs further research, is cited, and impacts both researcher and practitioner discussions. To date, primary impacts of this kind can only be assessed by pointing to:

- \* conference, journal, and book acceptances
- \* large attendance at a project produced ASIST2006 panel session (focusing on PHASE I dialogue)
- \* acceptance of a full-day panel proposal for ICA2007 (also focused on PHASE I dialogue)
- \* invitation to do full-day working symposium at ASIST2008 (also focused on PHASE I dialogue)

The remaining other immediate indicator of project impact comes from website traffic at the primary project site at OSU and the co-investigator site at OCLC. This section summarizes these reports. APPENDIX H (in the online version of this performance report only) provides a copy of the website hit and download charts by year and by month from the main project site at OSU. APPENDIX I provides a copy of the ourcomes report the OCLC team submitted to project PI Dervin. This report includes website traffic graphs by year and month for the OCLC site on pages I-6 to I-7.

The two charts below provide summary data for the OSU main project website (first table) and the co-investigator site at OCLC (second table). In both tables, cells highlighted in yellow are visits. All other numbers refer to downloads. The abbreviation "na" means not applicable because the named webpage did not yet exist. The ending count date for the OSU data is August 2006 for the IMLS site, and April 2006 for the Sense-Making Methodology site. For OCLC, the ending count date was May 2006. Results showed that:

- \* The two project websites -- the main site at OSU and the co-investigator site at OCLC -- totaled 42,221 hits in the 3 years since the websites were launched -- 34,408 at OSU; 7,813 at OCLC.
- \* Downloads of proposal components -- abstract, narrative, notes, references, draft instruments -- at the OSU site totaled 8,444 in the 3 year period.
- \* Downloads of the two ASIST2006 presentations -- panel and poster-paper -- totaled 502 in the 3 months they were available at the OSU site.
- \* The IMLS project site at OSU links to 3 related papers authored by principal investigator Dervin - - papers that have played a foundational role in guiding the OSU team's conceptual and methodological approaches. These papers are actually located on Dervin's Sense-Making Methodology website. Because the SMM website received more than 1/2 million visits in the 3-year project period, it would have been prohibitive to disentangle which downloads emanated from which website. Together over the 3-year-period, these foundational papers were downloaded 11,314 times.
- \* The OCLC web counts list 4 presentations implemented by co-investigators Connaway and Prabha that have been available online (and for which the OSU site has provided links). Across these 4 presentations, the download count as of May, 2006 was 3733.

WEBSITE VISITS AND DOWNLOAD COUNTS FOR THE OSU PROJECT SITE: <a href="http://imlsproject.comm.ohio-state.edu">http://imlsproject.comm.ohio-state.edu</a> FOR URLS to specific papers, see: <a href="http://imlsproject.comm.ohio-state.edu/imls_papers_list.html">http://imlsproject.comm.ohio-state.edu/imls_papers_list.html</a> <a href="http://imlsproject.comm.ohio-state.edu/imls_related_list.html">http://imlsproject.comm.ohio-state.edu/imls_related_list.html</a>				
PORTION OF WEBSITE	2004	2005	2006 (as of 8/06 for OSU; 5/06 for OCLC)	TOTAL HITS
IMLS PROJECT WEBSITE TOTAL HITS	1868	17443	15097	34408
IMLS PROPOSAL AS SUBMITTED 2003				
...proposal abstract	120	730	514	1364
...proposal narrative	99	1303	1049	2451
...proposal notes (literature review)	80	381	288	749
...proposal references (bibliography)	156	1506	756	2418
...online survey instrument, proposal draft	60	326	227	623
...phone interview instrument, proposal draft	70	464	305	839
Dervin, Case, Dillon, Fisher, Normore, Tenopir with numerous co-authors, <i>Being user oriented</i> .... ASIST2006 panel	na	na	262	262
Dervin, Reinhard, Kerr, Connaway, Prabha & Normore, <i>How libraries, internet browsers, and other sources help</i> .... ASIST2006 poster-paper (most visits & downloads here would be through ASIST and cannot be counted)	na	na	240	240
ITEMS LINKED FROM IMLS SITE TO SENSE-MAKING METHODOLOGY SITE ( <a href="http://communication.sbs.ohio-state.edu/sense-making">http://communication.sbs.ohio-state.edu/sense-making</a> )*				
Dervin (2003). <i>Human studies and user studies: a call for methodological interdisciplinary</i> ....INFORMATION RESEARCH ...total hits as of 1/29/07 at <a href="http://www.informationr.net">www.informationr.net</a> = 6997	64	1173	1316	2553
Dervin (2005). <i>Building big user studies out of small encounters</i> ....WEB-WISE2005	na	697	842	1539

Dervin (2005). <i>Libraries reaching out with health information to vulnerable populations...</i> JOURNAL OF MEDICAL LIBRARIANSHIP, and preceding publication presentation at NATIONAL LIBRARY OF MEDICINE on <i>Community-Based Information OutReach</i> (held 12/04) with both linked to Dervin (2001). <i>What we know about information seeking and use and how research makes a difference in our knowing...</i> REPORT TO NATIONAL LIBRARY OF MEDICINE	na	4019	3203	7222
SMM WEBSITE TOTAL HITS	27868	285165	253124	566,157
*These 3 rows list papers that were foundational to the OSU's team approach to proposal development and execution of PHASES I and II. The IMLS project site at OSU links to these items at the Dervin's Sense-Making Methodology website. Because this website has received more than 1/2 million hits in the past 3 years, it is labor prohibitive to track which of the downloads above came from the IMLS site links and which from the SMM site links. Because the papers have been conceptually and methodologically foundational, they are listed above.				

WEBSITE VISITS AND DOWNLOAD COUNTS FOR THE OCLC CO-INVESTIGATOR PROJECT SITE: <a href="http://www.oclc.org/research/projects/imls/">http://www.oclc.org/research/projects/imls/</a> FOR URLS to specific papers, see: <a href="http://imlsproject.comm.ohio-state.edu/imls_papers_list.html">http://imlsproject.comm.ohio-state.edu/imls_papers_list.html</a>				
WEBSITE HIT COUNTS AND DOWNLOADS see <a href="http://imlsproject.comm.ohio-state.edu/imls_papers_list.html">http://imlsproject.comm.ohio-state.edu/imls_papers_list.html</a> for links to abstracts at OSU site and full presentations where available at OCLC site	2004	2005	2006 (as of 8/06 for OSU; 5/06 for OCLC)	TOTAL HITS
OCLC's SENSE-MAKING PROJECT WEBPAGE	3189	2824	1800	7813
Connaway, Prabha & Dervin (2005). <i>An overview of the IMLS project...</i> LIBRARY OF CONGRESS FORUM, ALA MIDWINTER	na	1010	582	1592
Prabha, Connaway & Dervin (2004). <i>What Ohio librarians want to know...</i> ALA ASSOCIATION OF OHIO	na	777	502	1279
Connaway, Prabha & Dervin (2005). <i>The whys and hows of students and faculty finding what they want...</i> IOWA OCLC USERS GROUP	na	373	388	761
Connaway (2006). <i>Mountains, valleys &amp; pathways: Serials users' needs...</i> NORTH AMERICAN SERIALS INTEREST GROUP	na	na	101	101

**CERTIFICATION**

In submitting this report, I certify that all of the information is true and correct to the best of my knowledge.



Brenda Dervin, Principal Investigator  
 Columbus, Ohio  
 January 31, 2007  
 (updated April 18, 2007)

**LIST OF REPORTS, PUBLICATIONS & PRESENTATIONS PRODUCED TO DATE**

LEAD	NATURE OF PRODUCT	FOCUS	SUBSTANTIVE CONTEXT	AVAILABLE ONLINE AT MAIN OSU SITE	PRINTED COPIES TO IMLS (6 reports in total)
<b>PROJECT REPORTS (4 printed reports prepared for submission to IMLS)</b>					
OSU	PHASE I REPORT	activity summary, literature review summaries, empirical reports	Dialogue between fields and between practice-research; report on state of the art literature reviews	entire report	entire PHASE I report
OSU	PHASE II REPORT	empirical report	Sense-Making online and phone interview study	entire report: * exec summary * 10 chapters	executive summary of PHASE II only, because of length (with M Crawley's permission)
OCLC	PHASE III REPORT	empirical report	Focus group interview study	entire report	entire PHASE III report
OCLC	PHASE IV REPORT	empirical report	Semi-structured interview study	entire report	entire PHASE IV report
<b>FINAL PERFORMANCE REPORT (1 printed report prepared for submission to IMLS)</b>					
OSU	FINAL PERFORMANCE REPORT	overview	Summing up entire project	entire report	entire FINAL PERFORMANCE REPORT
<b>PUBLICATIONS (** items collated in SUPPLEMENTARY COMPILATION of chapters, articles, posters, and panel presentations prepared for submission to IMLS)</b>					
OSU	book chapter	lit review & empirical report, from PHASE II data	emotional dimensions of information seeking as they relate to evaluating sources	abstract & the literature review component	ms final draft, in **
OSU	journal article, ADVANCES IN LIBRARIANSHIP	lit review	the strengths and weaknesses of taking a special populations approach to researching and designing information services for users	abstract, summary & conclusions	ms final draft, in **
OSU	journal article, INFORMATION RESEARCH	empirical report from PHASE I data	thematic analysis of expert input on the big unanswered questions about users and the challenges of collaborating across research and practice divides	abstract, listing of major and sub-category themes & link to www site informationr.net	final ms, in **
OSU	journal article, INFORMATION RESEARCH	lit review	the challenges of dialogue across fields and across research-practice divides	abstract, link to supporting PowerPoint designed for graduate students & link to www.site informationr.net	final ms, in **
OCLC	journal article, JOURNAL OF DOCUMENTATION	lit review & empirical report, from PHASE III and IV data	what is enough: when users stop, applying several theoretic frameworks	abstract	ms final draft in **
OCLC	journal article, SERIALS LIBRARIAN	empirical report, from PHASE III and IV data	identifying serials user needs, preliminary analysis	abstract	ms final draft, in **
<b>PRESENTATIONS (1 compiled report prepared for submission to IMLS)</b>					
OSU	panel, ASIST 2006	dialogue between fields	experts from 3 fields -- LIS, COMM, HCI -- discuss results of PHASE I data collecting and implications	panel abstract, audio files, power points, other supporting	panel abstract & full panel proposal, in **

IMLS AWARD # LG-02-03-0062-03 - FINAL PERFORMANCE REPORT - APPENDIX A-2

				materials; also listed in ASIST2006 proceedings	
OSU	poster-paper ASIST 2006	empirical report, from PHASE II data	how different sources of input help; which helps make the biggest difference	poster, proposal & full paper; also listed in ASIST2006 proceedings	poster, proposal & full paper, in **
OSU	panel, ICA 2007	dialogue between fields	experts from 3 fields - LIS, COMM, HCI -- discuss results of PHASE I data collecting and implications	draft panel proposal as approved for May 2007 conference	online only
OSU	PowerPoint, pedagogical	lit review	quotable quotes from the INFORMATION RESEARCH paper on the challenges of dialogue, prepared especially for graduate students	PowerPoint	online only
OCLC	PowerPoint, Iowa OCLC User's Group	preliminary empirical report, PHASE III and IV data	the whys and hows of student and faculty finding what they want	PowerPoint link to OCLC	online only
OCLC	PowerPoint, NA Serials Interest Group	preliminary empirical report, PHASE III and IV data	identifying serials user needs	PowerPoint link to OCLC	online only
OCLC	PowerPoint, NFAIS2005 conference	preliminary empirical report, PHASE III and IV data	meeting the information needs of college and university users	PowerPoint link to OCLC	online only
OCLC	PowerPoint, ALA midwinter, 2005	project overview	project overview	PowerPoint link to OCLC	online only
OCLC	PowerPoint, Academic Library Assn of Ohio. 2004	project overview	project overview	PowerPoint link to OCLC	online only

## PROJECT PUBLICATIONS, PAPERS, PRESENTATIONS IMPLEMENTED BY OSU TEAM

### **Publications**

Dervin, B. & Reinhard C.D. (in press). How emotional dimensions of situated information seeking relate to user evaluations of help from sources: An exemplar study informed by Sense-Making Methodology. In D. Nahl & D. Bilal (Eds.), *Emotional design: The emergent affective paradigm in information behavior research and theory*. Medford, N.J.: Information Today, Inc.

Abstract available at:

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/osu\\_emotions.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/osu_emotions.pdf)

A state-of-the-art-review of literature on the relationships between "emotions" and information seeking was embedded in this chapter as Figure 2 and Footnote 5. These are also reproduced at: [http://imlsproject.comm.ohio-state.edu/imls\\_papers/osu\\_emotions.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/osu_emotions.pdf) with permission dated September 13, 2006, from the American Society for Information Science & Technology and from Information Today.

Dervin, B., Reinhard, C.D., & Kerr, Z.Y. (2006). The burden of being special: Adding clarity about communicating to researching and serving users, special and otherwise. *Advances in Librarianship*, Vol. 30 (Danuta A. Nitecki & Eileen G. Abels, editors), pp. 241-277.

Outline, summary and conclusions available at:

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/osu\\_adv.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/osu_adv.pdf)

REPRINTED with permission from Elsevier.

ADVANCES IN LIBRARIANSHIP Homepage is at:

<http://www.sciencedirect.com/science/bookseries/00652830>

Dervin, B. & Reinhard, C.D. (2006). Researchers and practitioners talk about users and each other: Making user and audience studies matter - paper 1. *Information Research*, 12(1), paper 286.

Available at:

<http://informationr.net/ir/12-1/paper286.html>

Abstract available above and at:

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/osu\\_IR01.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/osu_IR01.pdf)

Copy of the listing of major and sub-categories from the paper's thematic analysis available at:

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/asist06\\_panel\\_infoR\\_01themes.html](http://imlsproject.comm.ohio-state.edu/imls_papers/asist06_panel_infoR_01themes.html)

Dervin, B., Reinhard, C.D., Shen, F.S. (2006). Beyond communication -- research as communicating: Making user and audience studies matter - paper 2. *Information Research*, 12(2), paper 287.

Available at:

<http://informationr.net/ir/12-1/paper287.html>

Abstract available above and at:

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/osu\\_IR02.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/osu_IR02.pdf)

Link to PowerPoint focusing on sources used in this paper available at:

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/asist06\\_panel\\_infoR\\_02quotes.ppt](http://imlsproject.comm.ohio-state.edu/imls_papers/asist06_panel_infoR_02quotes.ppt)

### **Presentations:**

Dervin, B., Case, D., Dillon, A., Fisher, K., Normore, L., Tenopir, C, with numerous co-authors (2006). *Being user oriented: Convergences, divergences, and the potentials for systematic dialogue between disciplines and between researchers, designers, and providers*. Panel session at American Society for Information Science and Technology annual meeting, November 3-9, Austin, TX.

Available at:

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/asist06\\_panel\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_papers/asist06_panel_list.html)

Linked to: original panel proposals, panel audio files, panel PowerPoints and other supporting material.

Dervin, B., Reinhard, C.D., Kerr, Z.Y., Connaway, L.S., Prabha, C., & Normore, L. et al. (2006). *How libraries, internet browsers, and other sources help: A comparison of sense-making evaluations of sources used in recent college/university and personal life situations by faculty, graduate student, and undergraduate users*. Poster presented at American Society for Information Science & Technology annual meeting, November 3-9, Austin, TX.

Available at:

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/asist06poster\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_papers/asist06poster_list.html)

Linked at that URL to: poster abstract, full background paper, PowerPoint extracted from full paper, copy of actual poster

Dervin, B., Reinhard, C.D., Shen, F.C., Adamson, S.K. & Karnolt, N.M. (2006). *We get by with a little help from our friends: quotable quotes about research as communicating*. Columbus, Ohio: School of Communication, Ohio State University. PowerPoint presentation.

Available at:

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/asist06\\_panel\\_infoR\\_02quotes.ppt](http://imlsproject.comm.ohio-state.edu/imls_papers/asist06_panel_infoR_02quotes.ppt)

## PROJECT PUBLICATIONS, PAPERS, PRESENTATIONS IMPLEMENTED BY OCLC TEAM

### **Publications**

Connaway, L. S., & Prabha, C. (2007). Identifying serials user's needs: Preliminary analysis of focus group and semi-structured interviews at colleges and universities. *Serials Librarian*, 52, 1/2.

Abstract available at:

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/oclc\\_serials.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/oclc_serials.pdf)

Prabha, C., Connaway, L. S., Olszewski, L., & Jenkins, L. (2007). What is enough? Satisficing information needs. *Journal of Documentation* (special issue on human information behavior), 63, 1 (January), 74-89.

Abstract available at:

[http://imlsproject.comm.ohio-state.edu/imls\\_papers/oclc\\_jd.pdf](http://imlsproject.comm.ohio-state.edu/imls_papers/oclc_jd.pdf)

### **Presentations**

Connaway, L. S., Prabha, C., & Dervin, B. (2005, May 26). *The whys and hows of students and faculty finding what they want: Insights from interviews in an IMLS-funded research study*. Keynote address presented at the Iowa OCLC Users' Group 22<sup>nd</sup> Annual Conference, Iowa City, IA. PowerPoint presentation.

Available at:

<http://www.oclc.org/research/presentations/connaway/20050527-ioug-imls.ppt>

Connaway, L. S. (2006, May 5). *Mountains, valleys, and pathways: Serials users' needs*. Paper presented at the North American Serials Interest Group 21<sup>st</sup> Annual Conference, Denver, CO. PowerPoint presentation.

Available at:

<http://www.oclc.org/research/presentations/connaway/nasig200605.ppt>

Connaway, L. S., Prabha, C., & Dervin, B. (2005, February 28). *Meeting the information needs of college and university users: Preliminary results of a two-year, multi-disciplinary user investigation*. Paper presented at "Whose Mind Is It Anyway? Identifying and Meeting Diverse User Needs in the Ongoing Battle for Mindshare," National Federation of Abstracting and Information Services Annual Conference, Philadelphia, PA. PowerPoint presentation.

Available at:

<http://www.oclc.org/research/presentations/connaway/nfais2005.ppt>

Connaway, L.S., Prabha, C., & Dervin B. (2005, January 16). *An overview of the IMLS Project "Sense-making the information confluence: The whys and hows of college and university user satisficing of information needs"*. Presented at Library of Congress Forum, 2005 American Library Association Midwinter Conference, January 16, Boston, MA. PowerPoint presentation.

Available at: [http://www.oclc.org/research/presentations/connaway/alamw05\\_lcforum.ppt](http://www.oclc.org/research/presentations/connaway/alamw05_lcforum.ppt)

Prabha, C.; Connaway, L.S.; Dervin, B. (2004, November 12). *What Ohio librarians want to know about college and university faculty and student users*. Presented to Academic Library Association of Ohio, 30th annual conference, November 12, Dayton, OH. PowerPoint presentation.

Available at:

<http://www.oclc.org/research/presentations/prabha/alao2004.ppt>

*Updated April 18, 2007*

## **Phase I Report Project Overview, The Three-Field Dialogue Project, State-of- the-Art Reviews**

by

Brenda Dervin  
CarrieLynn D. Reinhard  
Sarah K. Adamson  
Tingting T. Lu  
Noelle M. Karnolt  
Teena Berberick

*Ohio State University School of Communication*  
EDITORS

### **CITE THIS REPORT AS:**

Dervin, B., Reinhard C.D., Adamson, S.K., Lu, T.T., Karnolt, N.M. & Berberick, T. (Eds.).  
*Sense-making the information confluence: The whys and hows of college and university user  
satisficing of information needs. Phase I: Project overview, the Three-Field Dialogue project,  
and state-of-the-art reviews.* 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, The Ohio State University. Available at:  
[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_I\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_I_report_list.html)

### **Chapters:**

- I: PROJECT OVERVIEW: SENSE-MAKING METHODOLOGY AS DIALOGIC  
APPROACH TO COMMUNICATING FOR RESEARCH AND PRACTICE  
Brenda Dervin
- II: THREE-FIELD DIALOGUE PROJECT: HOW RESEARCHERS AND  
PRACTITIONERS IN 3 FIELDS SAW USERS, USER RESEARCH AND EACH  
OTHER  
Brenda Dervin and CarrieLynn D. Reinhard, with Lynn Silipigni Connaway, Chandra  
Prabha, Tingting T. Lu, Troy R. Elias, Shannon Hoste, Jason Kusowski, and Bethany A.  
Siminuch
- III: QUANDRIES ABOUT USERS, USER RESEARCH, AND EACH OTHER: THE  
IMPRESSIONISTIC ESSAYS  
Sarah K. Adamson and Brenda Dervin, with Donald Case, Andrew Dillon, Karen Fisher,  
Lorraine Normore, and Carol Tenopir
- IV: THE OCLC MEMBERS COUNCIL SURVEY  
Lynn Silipigni Connaway and Chandra Prabha
- V: STATE OF THE ART REVIEWS  
Focusing on: emotions and information seeking  
Brenda Dervin and CarrieLynn D. Reinhard  
  
Focusing on: defining special populations  
Brenda Dervin and CarrieLynn D. Reinhard  
  
Focusing on: constructing dialogue across field and research divides  
Brenda Dervin, CarrieLynn D. Reinhard, and Fei C. Shen  
  
Focusing on: satisficing of information needs  
Chandra Prabha, Lynn Silipigni Connaway, Lawrence Olszewski, and Lillie Jenkins

**Phase II Report  
Sense-Making Online and Phone Interview Study**

by

Brenda Dervin  
CarrieLynn D. Reinhard  
Zack Y. Kerr  
Mei Song  
Fei C. Shen

*Ohio State University School of Communication*  
EDITORS

**CITE THIS REPORT AS:**

Dervin, B., Reinhard, C.D., Kerr, Z.Y., Song, M. & Shen, F.C. (Eds.) (2006). *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.

Available at:

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_II\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_II_report_list.html)

**LINKS**

ACKNOWLEDGEMENTS

OSU TEAM PROJECT RESEARCH STAFF

PHASE II EXECUTIVE SUMMARY: SUMMARY, CONCLUSIONS, APPLICATIONS, IMPLICATIONS

Brenda Dervin and CarrieLynn D. Reinhard

CHAPTER I: INTRODUCTION: AN IN-DEPTH QUANTITATIVE-QUALITATIVE STUDY OF USER SENSE-MAKING OF THE WHYS AND HOWS OF SATISFICING THEIR INFORMATION NEEDS

Brenda Dervin

CHAPTER II: SAMPLING

Brenda Dervin, CarrieLynn D. Reinhard, Mei Song, and Sandra J. Reed, with Lorraine Normore, Chandra Prabha, Lynn Silipigni Connaway, Lewis R. Horner, Christopher J. Lindemann, Thomas E. German, Michael P. Masters

CHAPTER III: INTERVIEWING

Brenda Dervin, CarrieLynn D. Reinhard, Mei Song, and Sandra J. Reed. with Chandra Prabha, Lynn Silipigni Connaway, Lorraine Normore, Mark Bendig, Clifton Snyder, Cat McGrew, Tingting T. Lu, Mu Hu, Mark E. Mulcahey, Jason Kusowski

CHAPTER IV: CODING AND CONTENT ANALYSIS

Brenda Dervin, CarrieLynn D. Reinhard, Mei Song, and Zack Y. Kerr, with Sandra J. Reed, Ann Connelly, Elizabeth K. Kelley, Michael P. Masters, Jonathan Racster, Teena Berberick, Noelle M. Karnolt, Elizabeth M. Brewer, Kasey L. Martini, Anne E. McDaniel, Susan M. Mills, Samantha Mowrer

CHAPTER V: DATA AND STATISTICAL ANALYSES

Brenda Dervin, CarrieLynn D. Reinhard, Mei Song, Sandra J. Reed, and Zack Y. Kerr, with Dremla Shumaker, Troy R. Elias, Lexine M. Trask

CHAPTER VI: HOW OUR SENSE-MAKERS SAW THEIR SITUATIONS

Brenda Dervin, Carrie Lynn D. Reinhard, Zack Y. Kerr, and Fei C. Shen, with Mei Song, Elizabeth K. Kelley, Jonathan Racster, Kasey L. Martini

CHAPTER VII: QUESTIONS OUR SENSE-MAKERS ASKED IN THEIR SITUATIONS

Brenda Dervin, Carrie Lynn D. Reinhard, Zack Y. Kerr, and Fei C. Shen, with Mei Song, Elizabeth K. Kelley, Susan M. Mills, Noelle M. Karnolt. Teena Berberick, Kasey L. Martini, Elizabeth M. Brewer

CHAPTER VIII: WHAT OUR SENSE-MAKERS LEARNED IN THEIR SITUATIONS

Brenda Dervin, CarrieLynn D. Reinhard, Mei Song, Zack Y. Kerr, and Fei C. Shen, with Samantha Mowrer, Anne E. McDaniel, Elizabeth K. Kelley, Noelle M. Karnolt, Teena Berberick, Kasey L. Martini, Sarah K. Adamson

CHAPTER IX: THE HELPS OUR SENSE-MAKERS SOUGHT IN THEIR SITUATIONS (AND SOMETIMES GOT)

Brenda Dervin, CarrieLynn D. Reinhard, Mei Song, Zack Y. Kerr, and Fei C. Shen, with Elizabeth K. Kelley, Noelle M. Karnolt, Teena Berberick, Kasey L. Martini, Sarah K. Adamson, Elizabeth M. Brewer

CHAPTER X: THE SOURCES OF INPUT OUR SENSE-MAKERS TURNED TO IN THEIR SITUATIONS

CarrieLynn D. Reinhard, Brenda Dervin, Zack Y. Kerr, Fei C. Shen, and Mei Song, with Jonathan Racster, Elizabeth K. Kelley, Noelle M. Karnolt, Teena Berberick, Kasey L. Martini, Sarah K. Adamson, Elizabeth M. Brewer

## **Phase III Report Focus Group Interview Study**

by

Lynn Silipigni Connaway  
Chandra Prabha  
Timothy J. Dickey

*(OCLC) Online Computer Library Center, Inc., Office of Research*

### **CITE THIS REPORT AS:**

Connaway, L.S., Prabha, C & Dickey, T.J. (2006). *Sense-making the information confluence: The whys and hows of college and university user satisficing of information needs. Phase III: Focus Group 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, The Ohio State University. Available at:

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/PHASE\\_III/PH\\_III\\_report.html](http://imlsproject.comm.ohio-state.edu/imls_reports/PHASE_III/PH_III_report.html)

### **REPORT CONTENTS:**

Table of contents

Executive summary and key findings

Phase III report: Focus group interview study

    Introduction, objective, and methodological approach

    Research procedures

    Findings

    Summary

Conclusions and participants recommendations

References

Appendices

- A: Participant invitations to focus group interviews
- B: Sampling overview for the recruitment of focus group interview participants
- C: Sampling procedures for the recruitment of focus group interview participants
- D: Demographic features of focus group participants
- E: Focus group instructions
- F: Summary reports sent to library directors of the five institutions

## **Phase IV Report Semi-Structured Interview Study**

by

Chandra Prabha  
Lynn Silipigni Connaway  
Timothy J. Dickey

*(OCLC) Online Computer Library Center, Inc., Office of Research*

### CITE THIS REPORT AS:

Prabha, C., Connaway, L.S. & Dickey, T.J. (2006). *Sense-making the information confluence: The whys and hows of college and university user satisficing of information needs. Phase IV:: Semi-Structured 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, The Ohio State University. Available at:

[http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_IV\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_IV_report_list.html)

### REPORT SECTIONS:

Table of contents

Executive summary and key findings

Phase IV report: Semi-Structured Interview Study

    Introduction, objective, and methodological approach

    Research procedures

    Findings

        Whys and hows

        Emerging themes

    Summary

Conclusions and participants recommendations

References

### Appendices

A: Demographic features of semi-structured interview participants

B: Semi-structured interview guidelines (complete)

C: Information-seeking tasks from semi-structured interviews

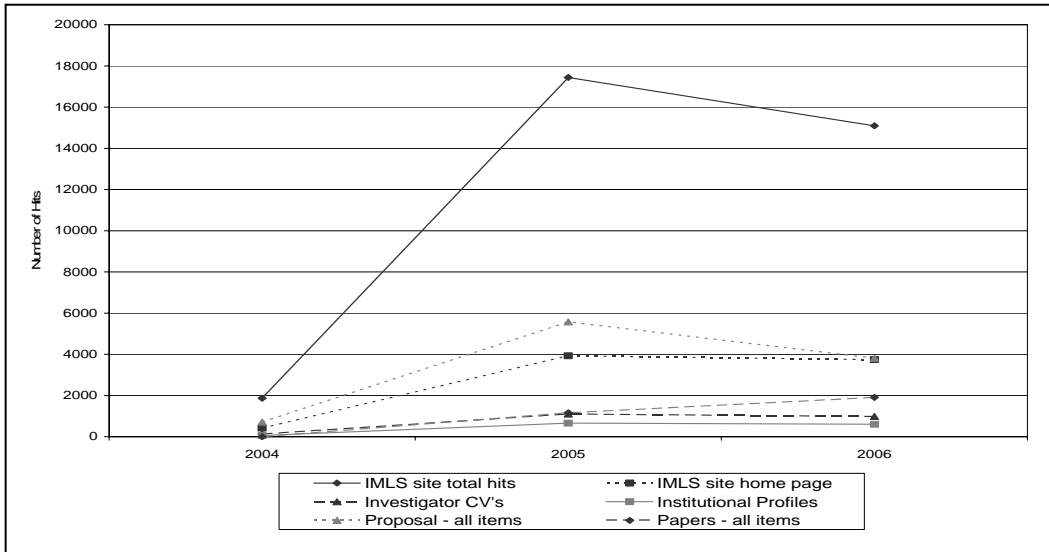
D: Detailed extracts from semi-structured interviews: The hows and whys of information seeking

**OSU IMLS PROJECT WEBSITE TRAFFIC GRAPHS**  
 (APPENDIX H in FINAL PERFORMANCE REPORT, ONLINE VERSION ONLY)

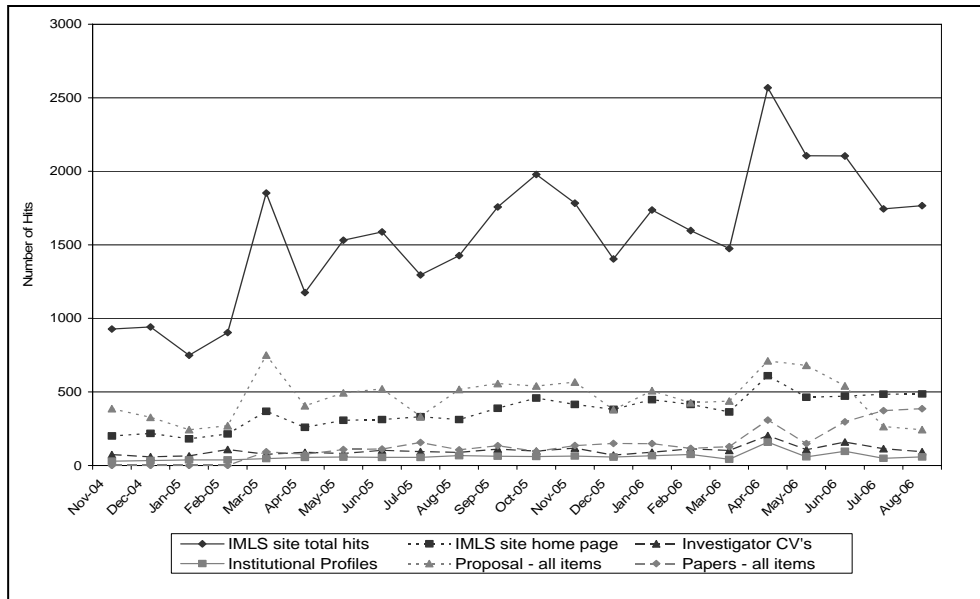
**EXPLANATION:**

All graphs cover total visits (hits) or downloads for the project period -- 2004 to 2006. Cut off date for counts was August 2006 except for graphs #4 and #4 where cut off date was April 2006.

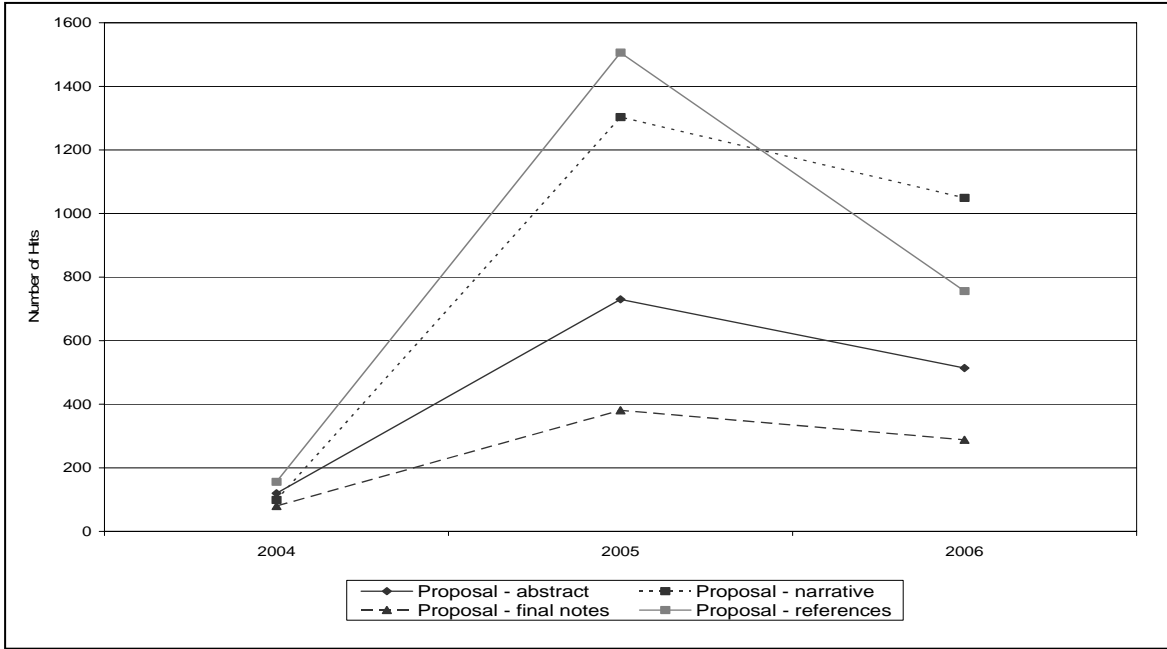
**#1a: OSU IMLS PROJECT WEBSITE TOTAL VISITS - BY YEAR**



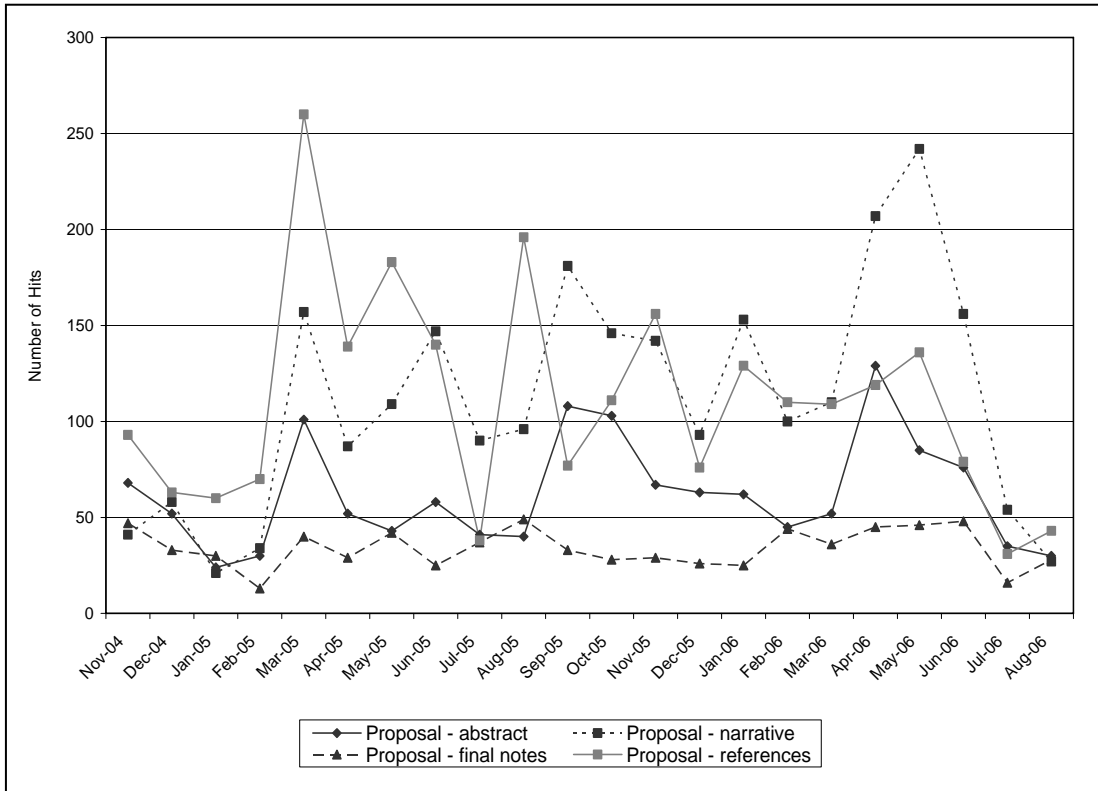
**#1b: OSU IMLS PROJECT WEBSITE TOTAL VISITS - BY MONTH**



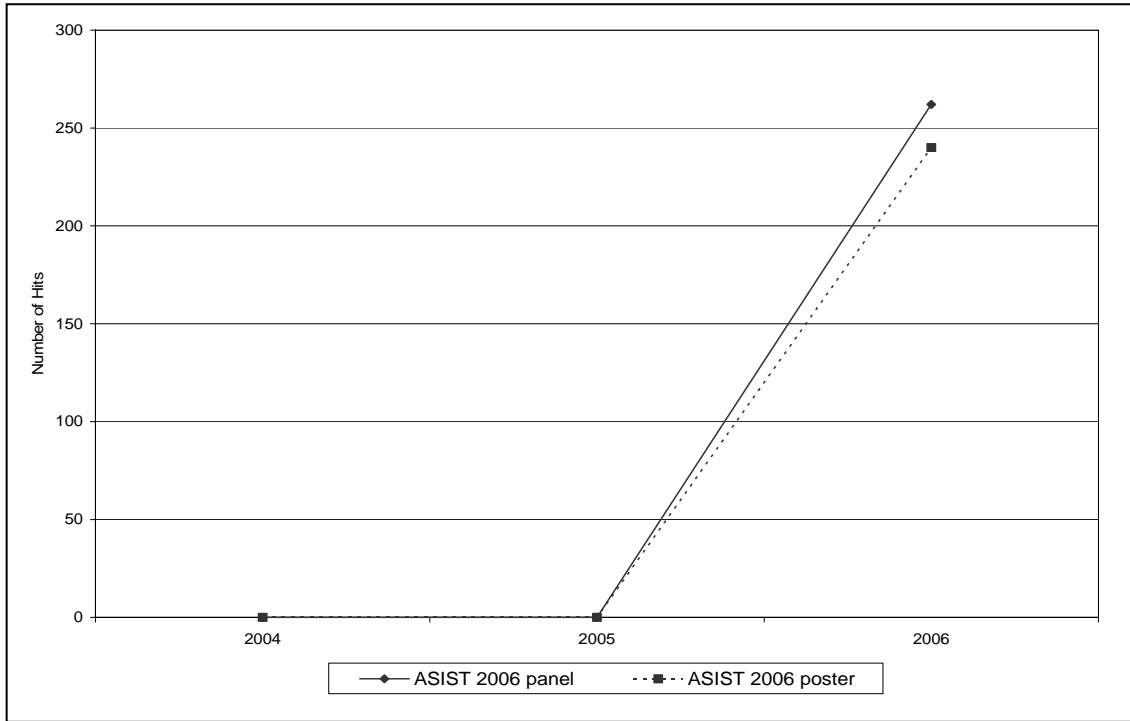
**#2a: DOWNLOAD COUNTS FOR THE COMPONENTS OF PROJECT PROPOSAL - BY YEAR**



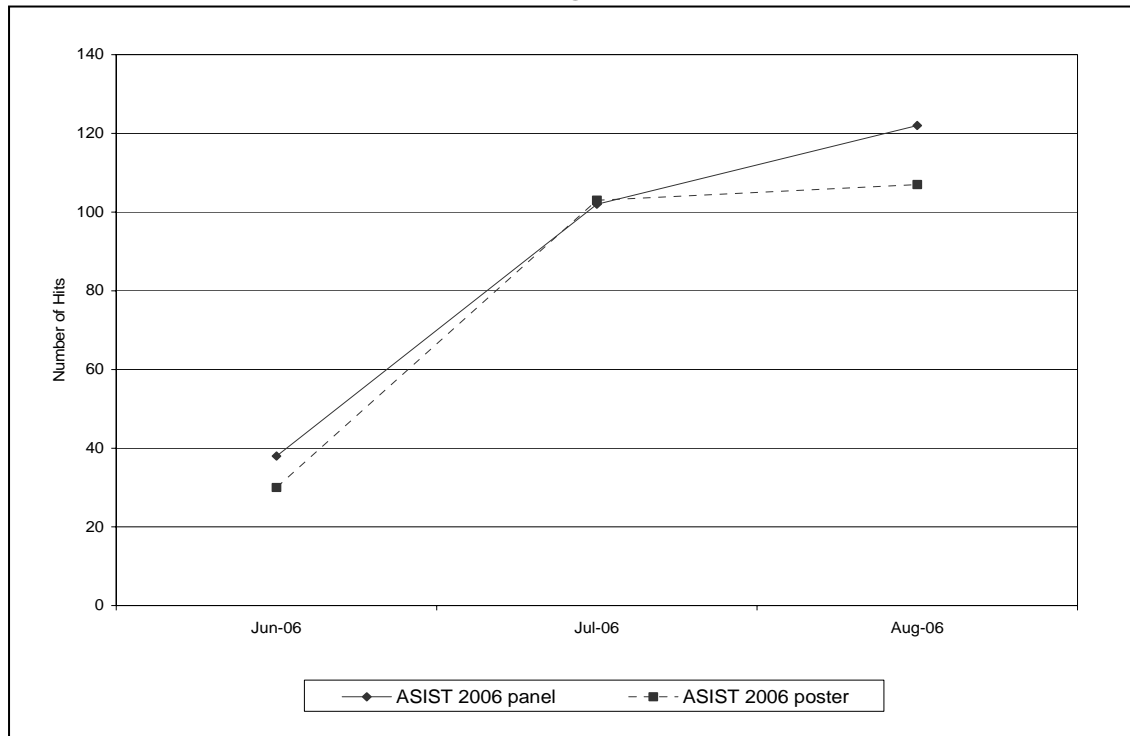
**#2b: DOWNLOAD COUNTS FOR THE COMPONENTS OF PROJECT PROPOSAL - BY MONTH**



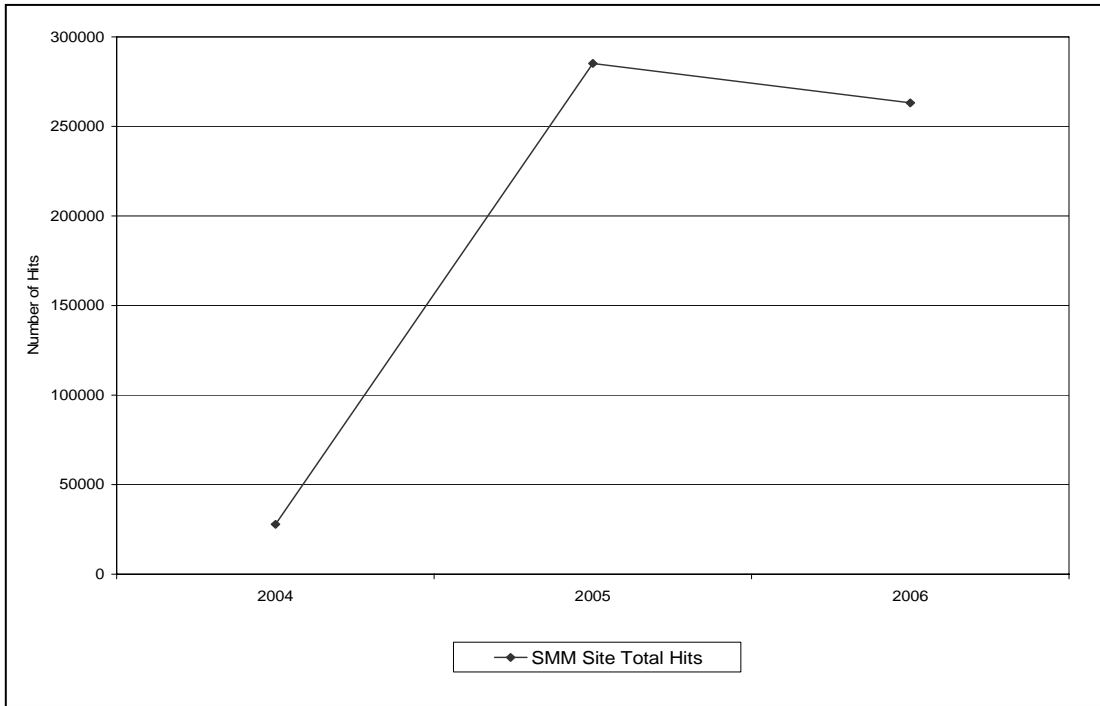
**#3a: DOWNLOAD COUNTS FOR THETWO PROJECT-GENERATED PAPERS/PRESENTATIONS THAT WERE ON THE SITE BY AUGUST 2006 - BY YEAR**



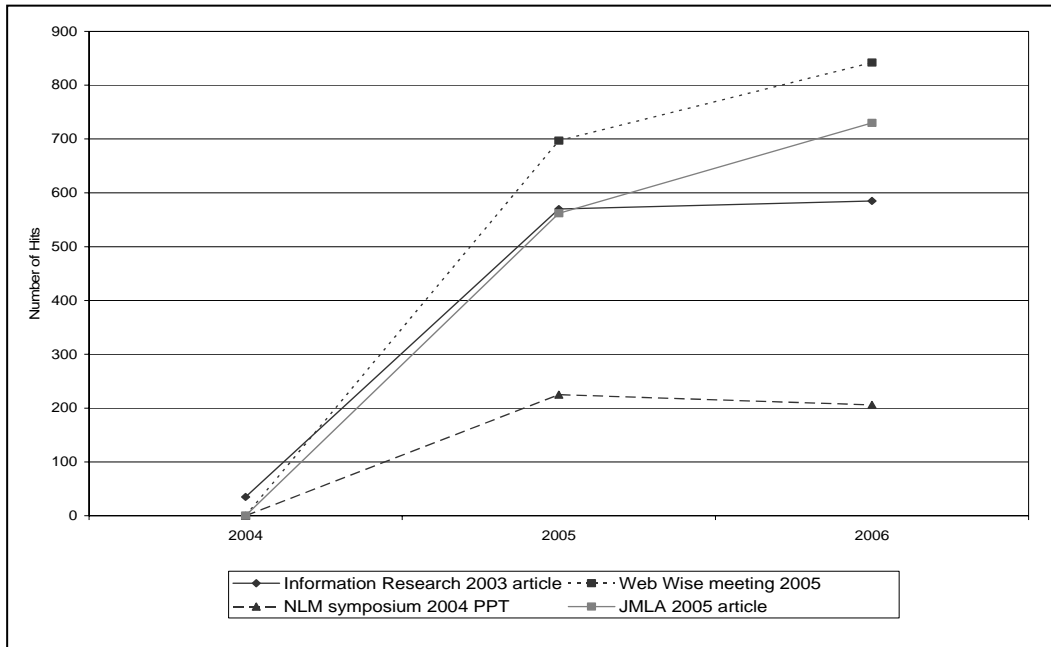
**#3b: DOWNLOAD COUNTS FOR THETWO PROJECT-GENERATED PAPERS/PRESENTATIONS THAT WERE ON THE SITE BY AUGUST 2006 - BY MONTH**



**#4: SENSE-MAKING METHODOLOGY WEBSITE TOTAL VISITS - BY YEAR**



**#5: DOWNLOADS FOR THE PAPERS ON THE SMM WEBSITE THAT WERE FOUNDATIONAL TO THE IMLS PROJECT - BY YEAR**



These counts were made in April 2006 so numbers are lower than those presented in the FINAL PERFORMANCE REPORT text. In addition, the NLM and JMLA paper counts were combined with those of another related paper for the FINAL PERFORMANCE REPORT counts.

## **Project Outcomes: OCLC**

Lynn Silipigni Connaway

Chandra Prabha

*(OCLC) Online Computer Library Center, Inc., Office of Research*

### OBJECTIVE

From the outset, the project "Sense-Making the Information Confluence" has sought to offer useful findings for both practicing librarians, and researchers in library and information science (LIS). In the face of rapid changes in the global information environment, this research has indeed provided results immediately relevant to both communities, as well as to other practitioners and researchers who are collaborating in an interdisciplinary manner. The principal outcomes from this project to date have included a number of contributions to the Library and Information Science literature; the data set, as planned, continues to be mined for publications. In addition, the results have immediate and intrinsic value to practicing librarians. The summary reports sent to the library directors of each institution whose students or faculty participated in the research (see the PHASE III report, [http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_III\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_III_report_list.html)), provide immediate and specific data and recommendations for their library operations. Future analysis of the project data should allow more general applications for library systems design to emerge.

### OUTCOMES

To date, the efforts of the OCLC team on the project has already yielded 7 scholarly contributions -- 2 published papers and 5 PowerPoint presentations -- to the LIS literature, as noted below. The two most recent, Prabha et al. (in press) and Connaway and Prabha (in press) provide significant contributions to the user needs literature. From a more theoretical and analytical framework, these findings provide breakthrough portraits of users' specific information-seeking behaviors, which are grounded in specific movement situations, as well as careful parsing of the varying hows and whys in any user's information seeking. These papers both identify emerging themes across the data, and note differences among user portraits in the research. Other forthcoming papers contributing to LIS literature from this research will be added to the list of outcomes as they become available.

A principal goal of the OCLC team's contributions to the project is to provide relevant findings to practicing librarians, as well as OCLC, for the development of user-centered services, systems, and library sources. The first concrete outcome in this category was the series of summaries sent to the library directors at each institution whose students or faculty participated in the Phase III focus groups. These summaries (see the PHASE III report, [http://imlsproject.comm.ohio-state.edu/imls\\_reports/imls\\_PH\\_III\\_report\\_list.html](http://imlsproject.comm.ohio-state.edu/imls_reports/imls_PH_III_report_list.html)) identify for each director the themes that emerge from the data specifically collected at his/her institution, thus being relevant to each specific system and service. The summaries include data regarding how participants from the specific institution view electronic sources and traditional print media, as well as some specific databases mentioned in the interviews, which provides useful data for acquisitions. In 4 of the 5 summaries, the data offer specific reasons that these participants give for not using library sources. The summaries of the focus group interviews, situation 4 ("magic wand"), contain a

large number of specific recommendations by users of all levels of academia, including but not limited to suggestions for library services, electronic interfaces, complete systems, and architectural layouts.

It should be noted once again that for the OCLC team it was important that all of the results of this research should be relevant to practicing librarians in the development and refinement of library systems, services, and practices. The project results -- including the complete set of project recommendations below -- have been published on the OCLC project website, which will be updated to reflect future and ongoing dissemination of OCLC team results. Website traffic to the OCLC Research site through May 2006, including tracked downloads of the four project presentations to date (see pages I-6 and I-7 in this report), indicates interest in the project, with a total of 7,813 site visits from January 1, 2004 to May 31, 2006.

In addition, the OCLC team anticipates future presentations and publications from the Phase III and Phase IV data, including practice-oriented submissions to professional publications such as *American Libraries* and *Library Journal*.

## PUBLICATIONS IMPLEMENTED BY THE OCLC TEAM

Connaway, L. S., & Prabha, C. (2007). Identifying serials user's needs: Preliminary analysis of focus group and semi-structured interviews at colleges and universities. *Serials Librarian*, 52, 1/2.

FOR MORE INFORMATION, CONTACT: [connawal@oclc.org](mailto:connawal@oclc.org)

**ABSTRACT:** An overview of the preliminary analysis of focus group interviews and semi-structured observations identifies how and why college and university information seekers meet their information needs. In the age of immediate gratification, in certain situations users may settle for information that is quickly and easily available instead of library sources that are considered more authoritative and trustworthy. Meeting user needs in the library environment requires updating library catalogs to implement discovery and recommender services that provide the associations and links that are available to users in other web-based environments and that meet these users' expectations of online systems and sources.

Prabha, C., Connaway, L. S., Olszewski, L., & Jenkins, L. (2007). What is enough? Satisficing information needs. *Journal of Documentation* (special issue on human information behavior), 63,1 (January), 74-89.

E-PRINT: <http://www.oclc.org/research/publications/archive/2007/prabha-satisficing.pdf>

**ABSTRACT:**

Purpose: Today the information space is so saturated that it is not possible to conclude a search with certainty that all relevant information on a topic has been identified. This paper attempts to understand how users know when to stop searching for more information.

Methodology/approach: Role theory, rational choice theory and the satisficing concept offer a useful framework for understanding users' decisions to stop searching for more information. Faculty and undergraduate and graduate students participated in focus group interviews to investigate what leads them to satisfy their information needs.

Findings: Academic library users describe both qualitative and quantitative criteria which lead them to make rational choices determining when "enough" information satisfies their needs. The situational context of both the participants' specific information need and their role in academic society affects every stage of their search -- from the selection of the first resources, to ongoing search strategies, to decisions on how much information is enough.

Originality/value: These findings broaden the scope of earlier use research, which tends to focus on the more static views of habitual information-seeking and -searching behavior, by applying theoretical frameworks for richer understanding of the users' experience.

Keywords: User studies, academic library users, information-seeking-in-context, satisficing, rational choice theory, role theory.

NATIONAL AND INTERNATIONAL POWERPOINT PRESENTATIONS BY OCLC TEAM

- Connaway, L. S. (2006, May 5). Mountains, valleys, and pathways: Serials users' needs. Paper presented at the North American Serials Interest Group 21<sup>st</sup> Annual Conference, Denver, CO.  
<http://www.oclc.org/research/presentations/connaway/nasig200605.ppt>
- Connaway, L. S., Prabha, C., & Dervin, B. (2005, May 26). The whys and hows of students and faculty finding what they want: Insights from interviews in an IMLS-funded research study. Keynote address presented at the Iowa OCLC Users' Group 22<sup>nd</sup> Annual Conference, Iowa City, IA.  
<http://www.oclc.org/research/presentations/connaway/20050527-ioug-impls.ppt>
- Connaway, L. S., Prabha, C., & Dervin, B. (2005, February 28). Meeting the information needs of college and university users: Preliminary results of a two-year, multi-disciplinary user investigation. Paper presented at "Whose Mind Is It Anyway? Identifying and Meeting Diverse User Needs in the Ongoing Battle for Mindshare," National Federation of Abstracting and Information Services Annual Conference, Philadelphia, PA.  
<http://www.oclc.org/research/presentations/connaway/nfais2005.ppt>
- Connaway, L. S., Dervin, B., & Prabha, C. (2005, January 16). An overview of the IMLS project 'Sense-Making the Information Confluence: The Whys and Hows of College and University User Satisficing of Information Needs'. Paper presented at Library of Congress Forum, 2005 American Library Association Midwinter Conference, Boston, MA.  
[http://www.oclc.org/research/presentations/connaway/alamw05\\_lcforum.ppt](http://www.oclc.org/research/presentations/connaway/alamw05_lcforum.ppt)
- Prabha, C., Connaway, L. S., & Dervin, B. (2004, November 12). What Ohio librarians want to know about college and university faculty and student users. Paper presented to The Academic Library Association of Ohio, 30th annual conference, Dayton, OH.  
<http://www.oclc.org/research/presentations/prabha/alao2004.ppt>

## REFERENCES

Byron, M. (Ed.) (2004). *Satisficing and maximizing: Moral theorists on practical reason*. Cambridge: Cambridge University Press.

Simon, H. (1955). A behavioral model of rational choice. *Quarterly Journal of Economics*, **69**(1), 99-118.

Wilson, T.D. (2005). Evolution in information behavior modeling: Wilson's model. In K. E. Fisher, S. Erdelez, & L. McKechnie (Eds.), *Theories of information behavior* (pp. 31-36). Medford, NJ: Information Today.



**TOTAL PRESENTATION DOWNLOADS TO MAY 2006**

		2006 (through 31 May)			TOTALS	
URL	Date	2004	2005			
1	<a href="http://www.oclc.org/research/presentations/connaway/alamw05_lcforum.ppt">http://www.oclc.org/research/presentations/connaway/alamw05_lcforum.ppt</a>	16-Jan-05	-	1,010	582	<b>1,592</b>
2	<a href="http://www.oclc.org/research/presentations/prabha/alao2004.ppt">http://www.oclc.org/research/presentations/prabha/alao2004.ppt</a>	12-Nov-04	-	777	502	<b>1,279</b>
3	<a href="http://www.oclc.org/research/presentations/connaway/20050527-ioug-ims.ppt">http://www.oclc.org/research/presentations/connaway/20050527-ioug-ims.ppt</a>	27-May-05	-	373	388	<b>761</b>
4	<a href="http://www.oclc.org/research/presentations/connaway/nasig200605.ppt">http://www.oclc.org/research/presentations/connaway/nasig200605.ppt</a>	5-May-06	-	-	101	<b>101</b>
<p>1 An Overview of the IMLS Project "Sense-making the Information Confluence: The Whys and Hows of College and University User Satisficing of Information Needs." (Connaway, Prabha, &amp; Dervin - LC Forum, ALA Midwinter - January 2005)</p> <p>2 What Ohio Librarians Want To Know About College and University Faculty and Student Users (Prabha, Connaway, &amp; Dervin - ALAO - November 2004)</p> <p>3 The Whys &amp; Hows of Students &amp; Faculty Finding What They Want. (Connaway, Prabha, &amp; Dervin - Iowa OCLC Users Group Conf. - May 2005)</p> <p>4 Mountains, Valleys, and Pathways: Serials Users' Needs. (Connaway - NASIG - May 2006)</p>						