

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 (a)

POSTER SESSION AT
American Society for Information Science & Technology annual meeting
November 3-9, 2006, Austin Texas

by

Brenda Dervin, School of Communication, Ohio State University, 3016 Derby Hall, 154 N. Oval
Mall, Columbus, Ohio 43210, dervin.1@osu.edu

CarrieLynn D. Reinhard, School of Communication, Ohio State University (address as above),
reinhard.27@osu.edu

Zack Y. Kerr, School of Communication, Ohio State University (address as above),
kerr.141@osu.edu

Lynn Silipigni Connaway, OCLC Research, OCLC Online Computer Library Center, Inc., 6565
Frantz Road, Dublin, Ohio 43017, connawal@oclc.org

Chandra Prabha, OCLC Research (address as above), prabha@oclc.org

Lorraine Normore, School of Information Sciences, University of Tennessee, 443
Communications & University Extension Bldg., 1345 Circle Park, Knoxville, TN 37996,
normore@utk.edu,

with

Mei Song, Elizabeth Kelley, Sarah Adamson, Teena Berberick, Kasey Martini, Noelle Karnolt
(all School of Communication, Ohio State University, address as above)

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Items posted there include:

*pdf of this abstract with links to notes, detailed results, tables, figures,
and references

*power point developed for poster session highlighting major findings

*jpg of the project poster

The references to Notes, Tables, and Figures included in the abstract
below are not linked here but are linked in the documents at the URL
listed above.

PURPOSE: Dervin's Sense-Making Methodology meta-theory posits that information and the sources/channels from which inputs are obtained are but means to life-facing ends -- that source-usings and evaluatings are constantly in flux. Any situation which is described by experts as an "information seeking situation" is usually comprised of many steps and micro-moments of encounters and evaluations. While traditionally the user has been seen as the focal unit of our attentions, in actuality the encountering moment may be more heuristically useful.

Note 1

Our purpose is to take a methodologically innovative look at how users see sources of input helping them in their sense-making situations. Our working hypothesis is that users evaluate

the same sources of input differently depending on situational circumstances and that conducting research helpful for designing systems and services requires looking at units of analysis smaller than users or the sources they turn to. We hypothesize that it is not differences between sources as essential categories that are the important differences for users, but how users evaluate sources as helping them.

If our working hypothesis is confirmed, one implication would be that sources that want to be more used and evaluated more favorably will want to focus not so much on what we see as the essential differences between sources or between users, but on how users find value from all sources when they are helpful. We also hypothesize that all sources will in some of the micro-moments of user-source encounters be evaluated as not helpful and in some as helpful. No source or category of sources can be seen as under all conditions more helpful than another.

Note 2

METHODOLOGICAL APPROACH: Our methods purposively break with tradition by analyzing micro-moments of source-using instances and by conceptualizing statistics as potential grounded theorizing data-mining tools. **Note 3** We have intentionally not collapsed our measurement categories and for purposes of this presentation report our results based on percentages of informant described source-using encounters. We have deliberately elected to not use more sophisticated statistical tools or to homogenize low frequency qualitative categories. These methodological strategies allow us to present our results as close as possible to the experiential realities reported to us by users and to do so in policy-articulate ways, using analytic approaches that are at one and the same time qualitative and quantitative.

Note 4

Our rationale for these methodological strategies is anchored in a series of extensive literature reviews that suggest a need to use innovative, even risk-taking, strategies to more adequately construct potential coherences across the cacophony of different approaches to user studies and different theories of information behavior and across the gaps between research and design/practice. These literature reviews can be found as follows: a) a review of the literatures on information seeking and use comparing attentions in library and information science to those in communication, particularly in the context of providing health information (Dervin, 2001); b) a review of the literatures on struggles achieving interdisciplinarity (Dervin, 2003b); c) the notes and references supporting the proposal originally submitted for the project described in footnote a; and, d) reviews of the struggles attending to users in other domains (Dervin & Foreman-Wernet, 2003).

For this study, we focused on micro-moments of source-using -- on source-using sense-making instances. We analyzed how faculty, graduate students, and undergraduates evaluated the sources they turned to in five recent college/university and personal life situations as helping them. While the focus on micro-moments of source-using is innovative, using critical situational entries for studying information needs follows in the long tradition of studies of everyday information seeking and use which started in 1968. **Note 5** In addition, the emphasis on how sources help intersects with another long tradition which started in 1983 that has more recently informed, in part, the work of those applying Dervin's Sense-Making Methodology. **Note 6**

METHODS: Below, we describe briefly our methods, and provide a broad portrait of our results and conclusions. Table and Figure numbers are inserted although in order to see them readers will need to link to the full copy of this paper at: http://imlsosuocproject.icomm.ohio-state.edu/imls_papers/asist06poster_list.html.

Sample of informants, situations, and source-using sense-making instances: Our informants were 409 faculty, graduate students, and undergraduates sampled randomly in disproportionate sub-samples drawn to represent proportionally within sub-samples the populations at 44 colleges and universities in central Ohio. Sampling was conducted by e-mail inviting informants to complete an online survey and a follow-up in-depth phone interview.

Sequential use of online survey and phone interview: The survey and interviewing approaches were informed by Dervin's Sense-Making Methodology. Briefly, informants were asked to describe five recent life-facing situations -- a troublesome situation in university/college life, a scholarship situation, a troublesome situation in personal life, a university/college situation involving mainly electronic sources, and a personal life situation involving mainly electronic sources. A map of the survey-interview is in **Table 1**. The nature of the situations informants described is not a focus of this paper. Briefly, the personal life situations mirror closely those obtained in prior studies of everyday information seeking, while the university/college life situations focus primarily on scholarship or on handling academic issues and bureaucracies. **Table 2** shows the content analysis scheme; **Table 3** compares the percentages of the 409 informants naming each macro-situation category (e.g. family, money, scholarship): **Figure 1** shows clearly that each situational critical entry performed as expected.

Specific queries to informants: For each situation contributed, informants were asked to describe what happened, what big questions they had, what success they had in getting answers, what learnings they gained, what helps they sought, and what sources they used. They also were asked to evaluate the helpfulness of their sources both quantitatively and qualitatively and to indicate what they saw as preventing them from getting all the help and answers they saw themselves as needing. For the presentation here, we are focusing particularly on the sources of input turned to, and the quantitative/ qualitative evaluations of these sources in terms of their helpfulness. The sources used in all situations became the units of analysis for this study.

Units of analysis: For each situation, informants indicated which of a roster of 25 sources they used, including among others informal and formal interpersonal sources, libraries, media, documents, and internet based sources. Source-using incidents were not intended to be mutually exclusive and informants were left free to indicate that they had used as many overlapping sources as they wished. Informants reported 11,319 source-using sense-making instances -- an average of 5.6 sources of input per situation or 27.7 per informant across all five situations. For the analyses presented here the 11,319 source-using sense-making instances are our units of analysis. **Figure 2** presents the Sense-Making Methodology metaphor and highlights those elements of the movement of user sense-making through time-space which are emphasized here.

Transcribing and coding of data: Data for each informant from the primarily close-ended online survey was combined with the primarily qualitative data obtained in phone interviews. The average number of interviewing minutes associated with each informant situation is estimated at 15-17 minutes each. Interviews were transcribed and the qualitative input was then content analyzed, both procedures executed with established quality control criteria. Interjudge coding reliability for all content analyses were 90% or above using the percentage agreement index with chance correction. **Note 7**

BROAD BRUSHSTROKE PICTURE OF RESULTS AND CONCLUSIONS: We present a more detailed portrait of our results in **Appendix A**. Our purpose here is to provide a broad picture of

our results and the conclusions they led us to.

* In general the sources our informants turned to confirmed numerous prior studies -- interpersonal sources were most used and internet sources began to approach their levels. In addition, the extent to which informants indicated they accessed their sources electronically also mirrored results from recent research.

* The average helpfulness evaluations of source encounters was high. However, no single category of sources was rated low in helpfulness across more than 75% of its sense-making instances. Likewise, 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 sense-making instances. 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. The eight least helpful source categories were: radio; television; webdiaries, blogs; newspapers; reference books; museums; students, classmates; ads, commercial materials.

* Informants saw sources as helping in many ways. On average, informants evaluated each source-using instances with 1.7 qualitative helps each. Most often used help judgments were: got pictures, ideas; got support; got resources, tools; got control; got directions; journeying got easier; and got human togetherness. Least often used were: got rest, pleasure; reached goals; got centered; got hows; got started, motivated; kept going, made progress.

* Some ways of being helped were seen by informants as more helpful than others. The qualitative dimensions of help naming that were more likely to be used as evaluations in high helpfulness encounters were: reached goals; journeying got easier; got started, motivated; got resources, tools; kept going, made progress; got connected. Those more likely to be used in low helpfulness encounters included 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 intersection of these findings 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.

* The correlation between the percentages of sense-making 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 tendency toward negative. This suggests that more used categories of judgment were not necessarily those assessed as more helpful. If anything, there was a tendency toward the opposite: less used criteria tended to be more often applied in more helpful encounters.

* 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. While more sophisticated future data analyses will necessarily collapse sources into smaller sub-sets (e.g. all library and museum sources, all media sources) and collapse help qualities using tools such as factor analysis, the highly qualitative detail in these findings unearthed a number of heuristic understandings. For example: even though museums were rarely mentioned as source-using instances (only 40 of 11,319 instances), they were significantly more

often evaluated on the qualities got resources, tools, as well as got rest, pleasure. In addition, got resources, tools was more often used for evaluation in high helpfulness museum source-using instances than in low.

* 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 advise (e.g. professors, advisors, mentors), some respite (e.g. television, museums, fiction books). However, this general support should not detract from the fact that the patterns in the findings show virtually all sources being evaluated in all ways and that it is the helpfulness of the encounter that makes the more important difference for users.

* Despite fears expressed in some commentaries that libraries cannot hold their own in the emerging electronic confluence, these data do not confirm that expectation. Library source-using instances were among the most highly rated and were evaluated in some unexpected ways. While got pictures, ideas; got connected; and got resources, tools were not unexpectedly the most named helping qualities for library source-using, journeying got easier was also often named and even more often in helpful encounters. Further, 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 indicates a large proportion of library-using instances were evaluated in these non-stereotypic ways.

* In general, the results also belie some negative stereotypes about users. Thus, for example, while ads, commercial materials were used, they were not among the source-using instances rated highly in helpfulness. Or, while got rest, pleasure was named as a helping quality despite the overall studies focus on troublesome situations, it was less frequently used as a dimension for evaluating high helpfulness encounters

* 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.

*Finally, there are clearly a great many more analyses to be done with these data -- for example, introducing controls for potential habit patterns in source-usings and evaluating by different groups of informants across situations. We see this presentation as a qualitatively useful beginning.

(a)This paper is one of the outcomes from the project "Sense-making the information confluence: The whys and hows of college and university user satisficing of information needs." Funded by the Institute of Museum and Library Services, Ohio State University, and the Online Computer Library Center, the project was implemented by Brenda Dervin (Professor of Communication and Joan N. Huber Fellow of Social & Behavioral Science, Ohio State University) as Principal Investigator; and Lynn Silipigni Connaway (OCLC Consulting Research Scientist III) and Chandra Prahba (OCLC Senior Research Scientist), as Co-Investigators. More information can be obtained at: <http://imlsosuoclcproject.icomm.ohio-state.edu/>. The

senior author thanks the following people for helpful conversations that served in part as impetus for line of work: Lorcan Dempsey, Vice President, OCLC Research; Andrew Dillon, Dean, School of Information, University of Texas-Austin; and Nancy Roderer, Director, Welch Media Library and Division of Health Sciences Informatics, Johns Hopkins Medical.