



Evidence Summary

The Information Practices of Physical Science Librarians Differ from Those of the Scientific Community: More Research is Needed to Characterize Specific Information Seeking and Use

A Review of:

Brown, Cecilia M. and Lina Ortega. "Information-Seeking Behavior of Physical Science Librarians: Does Research Inform Practice?" *College & Research Libraries* 66.3 (2005): 231-47.

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Abstract

Objective – As part of a larger study exploring the information environments of physical science librarians (Ortega & Brown), the authors' overall objective for this study is to profile physical science librarians' information behaviours. The authors' two-part hypothesis was that first, peer-reviewed journals would be preferred over all other sources for research dissemination, resembling the preferences of scientists, and second, that peer-to-peer

consultation would predominate for practice-oriented decisions.

Design – Mixed methods: survey questionnaire followed by citation and content analysis.

Setting – Five internationally disseminated professional association electronic mailing lists whose readership comprised those with interests in science librarianship: the American Library Association (ALA) Science and Technology Section; the American Society for Information Science &

Technology (ASIST) Science and Technology Information Special Interest Group; the Special Library Association (SLA) Chemistry Division and its Physics-Astronomy-Mathematics Division; and the American Geological Institute Geoscience Information Society.

Subjects – Seventy-two physical science librarians voluntarily responding to an online survey.

Methods – A questionnaire was distributed to inquire about physical science librarians' professional reading practices as well as their perceptions about the applicability of research to their work. Participants were asked to rank preferences among 11 resource types as sources supporting daily business, including personal communication, conference attendance, electronic mailing lists, and scholarly journals. Differences between the mean rankings of preferences were tested for significance by applying the Friedman test with $p > 0.0005$. Journals identified most frequently were analyzed using the Institute for Scientific Information's (ISI) Web of Science index and Ulrich's Periodical Index to measure proportions of research and non-research citations, as well as the general topic areas covered by the journals. Next, content analysis was performed for the years 1995, 1997, and 2000 in order to characterize research methodologies used in the previously identified journals according to a previously tested schema (Buscha & Harter). Results from this portion of the study were compared with participants' responses about journal usage.

Main Results – Librarians reported using personal communication (both face-to-face and electronic mailing lists) more frequently as a means of information gathering than professional journals, Web sites, conferences, trade publications, monographs, or 'other' resources. Variations

in responses appeared to correlate with years in the profession and in the respondents' time in their current positions, although there are indications that the importance of all information resources to practice and research declines over time. The relative importance of resources is also shown in time spent reading journal literature, less than 5 hours per week for 86% of participants.

Conclusion – For the first hypothesis, the authors found that unlike scientists, survey participants did not prefer research publications as vehicles for dissemination of their research results. For the second, librarians ranked peer-reviewed journals third in preference after personal communication and electronic mailing lists as sources of information supporting daily practice, supporting the second hypothesis that respondents would emulate the information use practices of mathematicians.

Commentary

Critical evaluation tools used for this evidence summary include the Worksheet for Critical Appraisal of Qualitative Research, a checklist provided by McMaster University, Canada, and the Evaluation Tool for Mixed Method Studies, from the University of Salford, UK.

The authors perform a valuable service to the profession in this inquiry, which is without precedent for physical science librarians. The methods used appear to be appropriate to the research questions, although there is no evidence of instrument validation. The authors address some of the limitations of the study: response rates are small, and estimating the generalizability of findings is not possible due to incomplete knowledge about the electronic mailing list participants. Based upon the numbers

provided, the survey participants ($n=72$) represent just 2% of subscribers to the electronic mailing lists named ($n=3,560$), and there are no data available to enable us to know what percentage of these subscribers are physical science librarians, or how representative the respondents might be of the entire population of physical science librarians. Although the study invited international participation from physical science librarians, there is no apparent attempt to examine geographical differences: all findings are generic to the sample. An additional weakness with regard to participant demographics is the apparent lack of information about academic background. Inquiry about coursework or experiences in the sciences and the participants' valuation of the rigour of the research obtained in the highly cited LIS journals would have enriched this limited feedback considerably. With these limitations the authors nonetheless claim to have captured a snapshot of the information-seeking behaviours of the population of physical science librarians, but due to the limitations mentioned, and the voluntary nature of the questionnaire, this claim seems questionable:

Although only a small fraction of the total number of the list subscribers responded to the questionnaire, the consistency of the answers received suggest that those responding provide a representative snapshot of the current research practices of physical science librarians. (235)

Unlike the authors' larger study (Ortega & Brown), the survey questions were not included, which constitutes a considerable barrier to critical evaluation of the research. Questions for analysis in both studies are

drawn from the same survey, though the survey questions listed in that work are selective, and include no questions about reading habits or preferences.

Understanding space limitations of paper publications, the authors would be well advised to provide access to the entire set of research questions as a way to encourage replication and to assist with improvement of practitioner research and critical evaluation skills.

One of the problems wrought by absence of the survey questions for critical evaluation (and for replication) is that the reader can have no clear understanding whether the journals identified were *most read*, or *most consulted* for decision or research support. It also remains unclear whether participants read research *articles* published in the journals named, as opposed to the non-research content measured by the authors (regardless of study type), although the authors appear to have assumed this was the case (241). Participants were asked to "describe their most recent application of the research literature," (236) and reported using it to learn about technology, to prepare for teaching, and to make collection decisions, with 11% using LIS research literature for their own research, although here a follow-up question about which journals provided literature for that purpose would have helped with a linkage between resource and application in practice. Questions about the librarians' assessment of the quality of research literature they have ranked would also be useful additions that would improve the applicability of the findings.

The study under examination poses questions to be examined by further research, perhaps using the same methods, strengthened by access to the survey tools. Physical science librarians might be identified through association membership lists so that sample sizes and response rates

could be shown. Requests for more detail in the survey questions, such as career and educational history, might also have improved the usefulness of this study. For example, participants were asked to name most often-read professional journals, and then to value their applicability in practice – but the question was recall-based as opposed to situational (e.g., What journals do you find most useful in making practice-related decisions, or conducting practice-related research?):

Having ranked the resources [in terms of importance to their daily practices], the librarians then were asked to gauge the importance of these resources overall, as well as the LIS literatures, to their practice (235).

There is a gap between the reported application for LIS research literature, and the most frequently read literature, so that using citation rankings and content analysis to characterize the journals named is not as pertinent as it might have been had the study authors linked questions about journals read to journals (and specifically, research articles within the journals) used to support everyday patron support and administrative, continuing education, or research activities. Further, in addressing use of the ISI Web of Science Index as source of impact factors, the authors did not address the sparse coverage of LIS titles or any concerns about limitations of impact factor analysis, which may have affected their findings. While the authors state that “journals designated as highly read by the subjects surveyed were analyzed for the number of citations to both research-oriented as well as ‘other,’ non-research articles using the Institute for Scientific Information’s (ISI’s) online citation index” (233), there is no more detailed description

of this process that would enable replication.

Overall, the contribution of this work to our understanding of librarian information behaviours is unquestioned, but it serves best as an intriguing suggestion of where further inquiry might benefit the profession.

Works Cited

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