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Published in:
Evidence Based Library and Information Practice

Link to publication

Citation for published version (APA):
Hunsucker, R. L. (2007). More appropriate information systems and services for the social scientist: time to put our findings to work. Evidence Based Library and Information Practice, 2(4), 95-103.

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Download date: 24 Apr 2017

Evidence Based Library and Information Practice

Classic

More Appropriate Information Systems and Services for the Social Scientist: Time to Put Our Findings to Work

A review of:

Line, Maurice B. "The Information Uses and Needs of Social Scientists: An Overview of INFROSS." Aslib Proceedings 23.8 (1971): 412-34. Rpt. in Lines of Thought: Selected Papers. Ed. L.J. Anthony. London: Bingley, 1988. 45-66.

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Received: 17 August 2007 **Accepted**: 04 November 2007

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Abstract

Objective – The study reported in this article was conceived in order to answer a question of very large scope: What are the information systems and services requirements of social scientists? Inherent in this question was the correlative question: How do social scientists tend to *use* such systems and services, and what resources and information access approaches do they by choice employ? The choice for such an approach was well-considered, given that 1) there were at the time almost no research results available in this area; 2) the investigators feared that approaches developed earlier for the natural sciences and technology would be uncritically adopted for the social sciences as well; and 3) "the social science information system was developing anyway, and if it was to develop in appropriate ways, some guidance had to be provided quickly" (412). The Investigation into Information Requirements of the Social Sciences (INFROSS) project team believed that there was "no point" (412) in embarking first on a series of more narrowly focused studies. The express intention was to derive findings that would be usable "for the improvement of information systems, or for the design of new ones" (414). For more on the project's conceptual underpinnings, see Line's "Information Requirements."

Design – Exploratory study employing both quantitative and qualitative approaches over a period of three and a half years, beginning in the autumn of 1967.

Setting – The whole of the United Kingdom. The project was funded by that country's Office for Scientific and Technical Information (OSTI), which had been established in 1965.

Subjects – Almost 1,100 randomly selected academic social science researchers, plus a substantial number of government social science researchers and social science "practitioners" ("college of education lecturers, schoolteachers, and individuals in social work and welfare" [413]). For the purposes of the study, the social sciences included anthropology, economics, education, geography, political science, psychology and sociology, but numerous historians and statisticians ultimately participated.

Methods – Three methods were employed: surveys, interviews, and direct observation. A "very long" (413) questionnaire was sent to 2,602 of the identified ca. 9,100 social science researchers in the United Kingdom, with 1,089 (41.8%) completed questionnaires returned. Two pilots were conducted with the questionnaire before a definitive version was finalized for the study. Seventy-five interviews were conducted (individually or in groups) with researchers, some of whom had received but not responded to the questionnaire, and some of whom were not included in the questionnaire sample. The interviews with non-responding persons in the sample were for purposes of determining "whether they were non-typical" (413). Fifty additional interviews were conducted (individually or in groups) with practitioners. Day-to-day observation of a small number of social scientists was undertaken in the context of a two and a half year-long experimental information service at Bath University – the first time any UK university had employed information officers for the social sciences.

Main results – The results showed a pronounced perception among social scientists that informal "methods of locating references to relevant published information" (416-8, 426-7, 431) are more useful than formal methods (such as consulting the library catalogue, searching library shelves, or searching in indexing and abstracting publications), and an even more pronounced inclination to actually *use* such informal methods – something of a revelation at the time. Less than one sixth of all sociologists, for example, made use of *Sociological Abstracts*. On both counts, "consulting librarian" (418) scored worse than all the other ten options. Forty-eight percent of respondents never did it, and only 8% perceived it as a "very useful" (418) method. Nonetheless, 88% of respondents were in principle prepared to delegate at least some of their literature searching, and approximately 45% all of it, "to a hypothetical information officer" (425). More than 75% of the experimental service clients also responded affirmatively to the question: "Should a social science information officer be a high priority," given limited available resources? (Line, Cunningham, and Evans 73-5). Most subjects found, in any case, that their major "information problems" (427-8) lay not in discovering what relevant documents might exist, but rather in actually getting their hands on them. In only around 20% of the cases were they ultimately successful in doing so. The younger the researcher, the greater the dissatisfaction with her/his own institution's collection. This study also revealed that academic social scientists drew little distinction between information needs for their research and those for their teaching.

There was one social science discipline which clearly stood out from the rest: psychology. Psychologists were the heaviest users of abstracting and indexing (A&I) publications, as well as of the journal literature, published conference proceedings, and research reports. They were also the least tolerant of time lags in the A&I services' coverage of new publications.

Further significant findings were:

- A librarian's way of categorizing research materials was not very meaningful to the researchers themselves.
- A&I services were generally used more often for 'keeping up' than for retrospective searching.
- Consultation with librarians was more common in the less scholarly and more intimate college environment than at research institutions.
- A large percentage found library cataloguing insufficiently detailed. The same was true for book indexes.
- There was considerable enthusiasm for the idea of a citation index for the social sciences. (N.B.: the *SSCI* began publication two years after the appearance of this article.)
- Among informal methods of scholarly communication and information transfer, conferences (to the investigators' surprise) rated remarkably low.
- Researchers with large personal collections made more use of the library and its services than those with small collections.
- Social scientists had little interest in non-English-language materials. Line speaks of "a serious foreign language problem" (424).

The INFROSS study produced an enormous amount of data. Only 384 of the computer tables produced were made available in 4 separate reports to OSTI. Only 3 tables, 2 of which were abbreviated, appeared in this article. The further raw data were available on request.

Conclusion – Line himself was exceedingly cautious in drawing explicit positive conclusions from the INFROSS results. He even stated that, "No major patterns were detected which could be of use for information system design purposes" (430). He was freer with his negative and provisional assessments. Two years earlier he had written: "It still remains to be established that there is an information problem in the social sciences, or that, if there is, it is of any magnitude" ("Information Requirements" 3). However, it was now clear to Line that information services and systems for the social scientist were indeed quite inadequate, and that (potential) users were not satisfied.

He was, furthermore, prepared to go out on a limb with the following assertions and inferences:

1) It was a great strength of INFROSS that it had – in marked contrast to previous *science* user studies – generated "a mass of *comparable* [his italics] data within a very broad field, so that every finding can be related to other findings" (430).

2) There are discernable – and exploitable – differences in the information needs and use patterns among the different social science disciplines (which he often also refers to as the different "subjects").

3) INFROSS had likewise made more evident the nature of *similarities* across disciplines.

4) There is indeed, from an information/library perspective, a continuum from the 'harder' to the 'softer' social sciences.

5) Social scientists showed too little awareness, made too little use, and even displayed "insufficient motivation" (431) to make use of available information systems/services. He elsewhere ("Secondary Services" 269, 272) characterizes them as "remarkably complacent," "even apathetic."

6) There is good reason to doubt the wisdom of libraries' investing in user education, since it is bound to have little effect (for further discussion of this matter, one can consult his "The Case for" 385-6 and "Ignoring the User" 86).

7) User-friendly systems amount inevitably to underdeveloped and ineffective systems – and therefore "personal intermediaries," in sufficient numbers, will remain essential if we wish to offer social scientists really good information services (426, 431).

Line believed that INFROSS was only a beginning, and he had already, even before writing this article, begun follow-up research aimed at attaining results really of use for information system design purposes (e.g., the DISISS project). He complained many years later, however, that all this research "indicated means of improvement, but led to no action" ("Social Science Information" 131). In any case, "Bath" (the common shorthand subsequently used to refer to all this research) became, and has remained, the starting point for all subsequent discussions of social science information problems. Several years ago, there was a well-argued international call for "a new and updated version of the INFROSS study" – with an eye to finally using the findings for practical purposes, and aiming "to extend and follow up the research agenda set by the original study" (Janes "Time to Take").

Commentary

The caution with which Line apprized the reliability and generalizability of his project's results was decidedly exaggerated. Rather, it has the *appearance* now, with the benefit of hindsight, of being decidedly exaggerated. Such reserve was, in the 1971 context, perhaps less out of place, as even Line himself later (e.g., "Social Science Information") realized that his judgment had proven too cautious. That is largely because so much of what the INFROSS data was – or seemed to be – suggesting has, since then, been time and again confirmed by subsequent studies in the UK and elsewhere. Even in its own time, I would guess that there was an intuitive feeling in our profession that INFROSS was very much on the money, whether we liked to admit it or not. This, together with the fact that it was the first large-scale information needs, seeking and use ("INSU") study outside of the natural sciences and technology, could help explain why the impression it made was immediate and widespread.

Yet, what I find so noteworthy about Line's article of thirty-six years ago is not only that he offers us a succinct overview of a very ambitious, carefully executed and compelling study, but that he along the way addresses some of the important methodological challenges for our field's research in general. Line makes cogent observations on some of the most fundamental quandaries of our professional practice, ones which are still very much with us. One paradoxical example of the latter is (dis)intermediation. Most users would have liked, INFROSS found, to delegate their searching – but didn't see the librarian as an appropriate intermediary. For Line, this meant a tragic impediment to developing "far more efficient and effective retrieval systems" (426). He concluded, "Indeed, I would go so far as to say that until this

question of the intermediary is settled one way or the other, it is extremely hard to know where to go in the development of information systems" (426). The technology is now vastly different, but we are still not much closer to a solution, although Line's own proposed solution could at the same time alleviate the greatest information problem of all: the "paradox of the active user" (Carroll & Rosson) – and perhaps even largely abrogate our classic "information/instruction" dilemma (e.g., Rettig). Today's practitioner might do very well to honestly reflect upon what Line's reasoning should mean for current service configurations.

Line's insights do not end there. He emphasizes the potentially critical significance of the factor *personality* in information systems use, the phenomenon of the "power user" (without employing that term), the vital function of content as "stimulus for ideas" (424) rather than as "information," and the importance of "accidental discovery" for system design. He discusses at some length the serious problem of the research/practice gap in the social sciences. Perhaps most striking is his advice that our profession should design information services that incorporate the virtues of both the informal communication channels which users prefer, and the powerful formalized kind of information systems which we have traditionally espoused (see also his "Information Requirements" 14). He makes, moreover, perspicacious comparisons of humanities and social science research, disarming the cliché that the latter is in general 'harder' (i.e., more like science and technology) than the former.

In the methodological department, he acknowledges that user studies such as his can tend to measure the level of *awareness* of, rather than the *extent of the existence* of, information problems; that respondents usually have no standard against which usefully to critique existing systems; and that expressions of desiderata tend to be conditioned by expectations. Revealing as they may be, their *predictive* value is relatively limited. He stresses also the dangers of not combining qualitative with quantitative methodologies in LIS research, the difficulty of achieving meaningful meta-analyses, and the importance of sufficient project funding. This article, the entire study, and in fact much of Line's long career as prolific LIS scholar *and* distinguished LIS practitioner breathe abundantly the spirit of an evidence-based approach to library and information work (in this regard, see also his eloquent avowal at "Le métier" 48).

Summarizing in a single journal article (the planned "book presenting the results of INFROSS in extended form" (432) never materialized) such an enormous, pioneering research project and its findings must have been quite a tall order, even for Maurice Line – and some criticism of this resulting publication is not out of place. Line states, for example, that the investigators started out with certain hypotheses in mind that they wanted to test – but fails to make clear just what they were. The tables, being compressed versions of those appearing in the full reports, are not always sufficiently easy to interpret. Also unfortunate is that Line speaks of "information uses" (e.g., 412, 415, 427) and the "information user" (e.g., 430) without making perfectly clear what he has in mind. What the study addressed is the use of systems, methods, publications and services for discovering and accessing potentially useful information – *not* what the social scientist then actually does with the information she or he has found (when, how, in what combinations or synthesis, and to what effect or for what purpose). This terminology has (unfortunately) become common shorthand in our field, but we might have expected more from someone who was not only very conscious of the

importance of this distinction, but had already ("Ends and Means") made a striking, even radical, case for librarians' developing more insight into how their clients *really use* information. This is what Blagden (27) calls the "expanded" definition of "use," and he reemphasizes that it rarely plays a role in user studies. That was still true in 1980, and has (again, unfortunately) been true ever since. As a fourth point of critique, we might observe that in our article Line likewise gives insufficient explicit attention to the concept of actual information *needs* as opposed to wishes, requests or expectations. We know from his other writings that he was much occupied with the implications of these distinctions and held that librarians should often base what they do on their perception of user *need* even when that is in conflict with user *wishes* or *requests*.

The INFROSS program itself displayed certain shortcomings. The practitioner (as opposed to the researcher) samples were not random, social scientists in the commercial sector were not even included, and the investigation of informal channels was less thorough than that of formal ones. The attempt to shed light on the subjects' research processes (how they were "going about" their research) was also largely unsuccessful, not least because the investigation's ethnographic component was too limited. Line was aware of these drawbacks, but pleaded – not unjustifiably – a shortage of time and funding.

But such critiques have little relevance for the heart of the matter. What is the importance, then, of Line's article for library and information services (LIS) *practice* today? I would submit that its importance lies especially in its being such a panoramic digest – perhaps the most panoramic available digest based on actual empirical research findings - of the many respects in which we can perceive that the kind of LIS that probably would be most appropriate and beneficial for the social scientist (and many other classes of user?) is *not* the kind of LIS that most of us have been offering – or willing or equipped to offer, even to this very day. The article, moreover, is sprinkled with still very pertinent methodological caveats, and served up with the characteristic Linean modesty, understanding of human nature, and waggish humour. This *practical* significance is increased by the fact that the publication in question dates back to the early seventies, and was widely noted from the beginning. We cited above Line's 1999 observation that INFROSS should have but didn't lead to any positive action, Janes' 2005 proposal for "finally using the findings for practical purposes," and noted that INFROSS' messages have in the meantime been individually reinforced by numerous narrower studies. Altogether, this amounts to eloquent testimony to the validity of the following remark by Line:

> However, even when several surveys, carried out at different places and times, point clearly in the same direction, librarians appear to be either unaware of the findings or reluctant to believe them or unwilling to act upon them. ("Ignoring the User" 83)

A more fundamentally practical point is hardly imaginable. There comes a time when the courage (call it what you like) has to be found really to *use* such findings, finally, as Janes suggests, for *practical* purposes. The integrity and legitimacy of our profession ultimately depends on doing so, I dare say. If this message is not yet forceful enough, we can call to mind some conclusions from the investigations reported by Swift and his colleagues (215-6) that the systems librarians traditionally have been offering are "inappropriate for social scientists," "do not take social science needs into account," and "interfere with the knowledge generation process" – whence

the "widespread unwillingness" to use them, as they are more apt to "impede the user" than to help.

One does not come forward with a heavy-duty proposal such as Janes' without good reason. Since 1971, no study has been conducted with anything like the scope and thoroughness of INFROSS. An "updated version" – as recommended to IFLA (Janes, "Time to Take") – would be invaluable if it reinforced the original findings so that practitioners could then confidently accept them as at least provisionally axiomatic, and at last begin to act upon them. It could also suggest to us how the tremendous technical developments of the last forty years have genuinely affected social scientists' behaviour and requirements. It could also, of course, indicate where Line's results and inferences are not yet adequately shown to be reliable for modification of practice, and where further targeted research is therefore required (an almost ideal *practical* point of departure, one is tempted to suggest).

The line of reasoning presented here gains even more cogency when we consider that broad-scale user studies have been lacking in our field now for a long time. Janes ("Time to Take") notes this fact, and Wilson ("Revisiting User Studies" 680-1) recently remarked that "there is a need for research programmes lasting for several years, rather than numerous one-off projects." "[S]mall-scale" studies, Wilson adds, have worked against pursuing "in-depth research" ("Revisiting" 680-1). He also rightly observes that (non)user *motivation* is "an area barren of research" ("Revisiting" 682). From 1966 through 1974 (excepting 1973), the *Annual Review of Information Science and Technology* published in each installment a comprehensive review chapter on information needs and uses studies. Thereafter, this summary appeared once every 4 to 6 years, until the series dried up with the 1990 volume, whereafter only more narrowly directed reviews appeared (none for the social sciences). There was furthermore a shift to the concept "information behavior" – a concept which the editor apparently considers to be narrower, given that Case's 2006 review "Information Behavior" is grouped with other (limited-scope) reviews under the section heading "Information Needs and Use." Those interested in a recent classified bibliography of social science information needs and uses studies may refer to Janes, "IFLA Bibliography."

Obviously, an updated study would have to be quite carefully designed, as it would necessarily amount to more than a replication. Even apart from the questions of technological advancements and altered types of working environments since 1971, appropriate (meta)theoretical approaches to INSU research developed since then must also be taken into account. To my mind, there should also be more extensive ethnographic and participatory-research elements. One must avoid any return to a situation of "conceptual impoverishment" (Dervin & Nilan 3), from which user studies too often have suffered, or of a lack of "theoretical underpinning" (Wilson, "Information Needs"). Most importantly, the research results ought all to be interpretable in the context of practical application to service improvement.

Characterizing the state of affairs before the INFROSS study, Line had written: "Information requirements in the social sciences are almost entirely unexplored" ("Information Requirements" 1). His landmark study here reviewed was soon profoundly and conspicuously to alter that situation for good: a 'classic' study if there ever was one.

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