



Article

Inquiring Informationists: A Qualitative Exploration of Our Role

Rex R. Robison
Informationist
National Institutes of Health Library, Bethesda, MD
Email: rexr@nih.gov

Mary E. Ryan
Informationist
National Institutes of Health Library, Bethesda, MD
Email: ryanm@mail.nih.gov

I. Diane Cooper
Informationist
National Institutes of Health Library, Bethesda, MD
Email: cooperd@mail.nih.gov

Received: 29 September 2008

Accepted: 11 February 2009

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Abstract

Objective – The goal of this study is to explore the impact of an informationist program at the National Institutes of Health (NIH) Library and to provide a basis for further program assessment. In 2001 the NIH Library began its informationist program, where librarians with training in both biomedicine and information science work alongside researchers. The goal of the program is to facilitate researchers' access to and usage of information resources.

Methods – The researchers used qualitative interviews with key informants to characterize the current informationist services of user groups. Subjects were selected to capture a variety of activities that would show patterns of how the program assists the researchers of various NIH groups. Following the interviews,

the authors extracted recurring and significant themes from the subjects' comments.

Results – Interview subjects provided their views on the informationists' skills, impact, and team participation. Research results documented that informationists helped find resources, provided instruction, and worked as part of the research team. The NIH groups currently using this service value their informationists' knowledge of library resources and their ability to access information needs quickly. The informationists' skills in finding information save the researchers time, increase the efficiency of the research team, and complement the contributions of other team members. Training by informationists was found useful. Informationist services led to increased self-reported library use, albeit in some cases this use was entirely via the informationist.

Conclusions – Informationists saved researchers time by obtaining requested information, finding esoteric or unfamiliar resources, and providing related training. These activities appeared to be facilitated by the acceptance of the informationist as part of the research team. This exploratory study provides background that should be useful in future, more extensive evaluations.

Introduction

The National Institutes of Health (NIH), a part of the U.S. Department of Health and Human Services, is the primary Federal agency for conducting and supporting medical research in the United States. NIH is made up of 27 different Institutes and Centers with over 18,600 employees. This group includes researchers in NIH laboratories and clinics, clinical staff in the research hospital, extramural program staff who oversee the grants for research outside NIH, and the leadership and administrative staff. The NIH Library seeks to serve the information needs of this diverse group. Since the NIH staff is spread across several buildings and cities, the NIH Library continually works to improve outreach and service, such as providing over 95% of its clinical and research journals online. In 2001, the NIH Library established an informationist program as another means to reach the NIH staff.

“Informationist” was a term first proposed in 2000 (Davidoff and Florance 996). In this

editorial the authors suggested that clinicians could delegate their information needs to informationists just as they order lab work, x-rays, and other procedures from other health care professionals. They imagined an informationist would be a librarian who provides not only information services but who also brings those skills to the clinical care floor or the research laboratory outside of the library departments.

The NIH informationists are librarians trained in both biomedical subjects and information science, and who work alongside researchers. Since 2001, the program has expanded over time to include 14 informationists working with over 40 groups in 16 institutes and centers (Whitmore, Grefsheim and Rankin 135). Each informationist is assigned to work with one to six groups of NIH researchers. These groups vary in size, function (clinical, research, administrative), and subject area. All the informationists have library science degrees. About half of them have degrees and/or work experience in science or

medicine, and all receive training relevant to the work of their groups (Robison 341-3).

This exploratory study sought to assess the impact of the informationist program, but little was known about the informationists' collective activities. There was broad awareness of the projects on which individual informationists had worked, including searching literature databases, answering reference questions on hospital rounds and in grand rounds, providing instruction, finding collaborators and experts, as well as creating Web pages, wikis, and databases. Survey data (Whitmore, Grefsheim and Rankin 139) indicated that users were pleased with informationist services. However, a general schema for the types of projects undertaken and information on what users particularly appreciated about the services were lacking. This study was initiated to gather data about the roles informationists play within their teams. The goal was to gain insight into and generate research questions about informationists' impact on facilitating access to information and the effect that has on NIH research.

Understanding the potential impact of the informationist program requires understanding the work of the NIH staff. NIH is similar in many ways to other large research hospitals, but it is clearly different in other ways, such as the absence of medical students or an urgent care facility. Moreover, the groups served by the library are diverse and include physicians, nurses, scientists, and administrators, engaging in clinical trials, bench research, patient care, budgets, grants, and writing papers. Studies on the information-seeking behavior of physicians has been shown to depend on the purpose of the question (teaching vs. patient care vs. research) (Gorman 730), the specialty of the physician (Bennett et al. 3), the type and location of the facility (Forsythe et al. 186; Gruppen 167-9), and the

personality of the physician (Gruppen 167-9; McKibbin, Fridsma and Crowley 141-3). For example, clinical settings are more concerned with patient care, and so tend to generate questions that are more specific and urgent (Forsythe et al. 193; McKnight 148-50; Bennett et al. 3). Therefore, it was decided to perform a qualitative research study, rather than another broad survey of NIH staff (see Grefsheim and Rankin). The NIH Library already collects quantitative data on the utilization of resources and users' assessments of services, but this data does not provide the complete picture. By identifying recurrent and dominant themes from interviews, the goal was to gain a deeper understanding of the relationships informationists have with their groups and to assess the impact that the informationists have on those groups and on their work. These themes would elaborate on the relatively simple quantitative data and indicate areas for further research.

Methods

Interviews

The key informant interview was selected as the data gathering technique for this study. The value of the interview process lay in the different perspectives and perceptions that the six key informants provided. Also, since these interviews primarily took place in the informants' offices, the environment was considered another source of "observed data."

The research employed a guided, semi-structured interview technique. There was a predetermined set of questions, but these questions could be reordered during the interview; the wording of the questions could be flexible; and the interviewer was free to respond and provide clarification. Moreover, the interviewer could generate follow-up questions to probe beyond initial responses to the defined interview

questions. These types of “probes” are designed to prompt subjects to elaborate on topics in their own ways and are particularly valuable in generating a broad spectrum of qualitative responses (Berg 93).

Each interview was conducted by two informationists from a team of three (the authors), one who asked most of the questions and the other who operated the recorder, took notes, and acted as observer. The interviewer pairs were varied for different interviews. The interviewers were always two of the authors, except for the interview with Subject #2, where another librarian was the observer. The informationist who actually worked with the informant was never present during the interviews, but in some cases that informationist did introduce the informant to the interview team.

Interviews took place in the offices of the subjects, except in the case of Subject #6, who lacked an appropriate workspace for a private interview. This interview was held in a private office in the NIH Library. After asking permission, which was granted in all cases, interviews were recorded with an Olympus WS-100 digital voice recorder.

Each interview began with a brief statement explaining that the purpose of the interview was to better understand the informationist program, not to judge the quality of an informationist’s work. The subject was then asked a range of questions (Appendix) on the work that the informationist had undertaken.

Subjects

Six NIH staff members who were considered frequent users of the informationist service were selected as key informants (Table 1). Subjects were asked, typically by their assigned informationist, if they would assist the library in assessing the

program by participating in an interview of 30 minutes or less. Ethical approval was not required for this study, since NIH does not require it for program evaluations conducted among its staff by central service organizations such as the NIH Library.

ID #	Degree	Gender	Title
1	PhD, RN	Female	Clinical nurse scientist
2	PhD	Male	Lab chief
3	MD	Male	Unit head
4	MD	Male	Consult service director
5	MD	Male	Branch chief
6	MD	Female	Staff clinician

Table 1. Subject Characteristics

Informants were purposefully selected, that is, they were NIH researchers and clinicians who had been working with the informationist program for at least a year. For this study, the number of interviews was less important than making sure that key informants represented a range of different groups and viewpoints served by the program. This approach is consistent with the qualitative research literature. Gilchrist and Williams list three reasons for using key informants: “(a) to gather information efficiently, (b) to gain access to information otherwise unavailable to the researcher, and (c) to gain a particular understanding or interpretation of cultural information.” They also add that the “informant needs to be thoroughly enculturated and currently active within his or her own culture.” (Gilchrist and Williams 74-5)

Analysis

The data analysis utilized a grounded theory approach. Grounded theory is a systematic qualitative research methodology that provides for the generation of theory from collected data. It provides the researcher with a model for data collection, analysis, and emergent theory development.

Grounded theory utilizes a unique approach, in that it moves from the specific to the more general. Unlike other research methods, grounded theory is inductive and develops from the data, building toward a theory. Grounded theory builds, rather than tests, theory (Dick). This methodology has been widely used in nursing and other health care research (Annells 57; Burgoyne et al. 3; Gavois, Paulsson and Fridlund 103; Persson and Ryden 356; Weber 654).

In grounded theory, the research question is explored through data gathered from key informants and observation. Concepts are identified from the data, connections are observed, and theories emerge. A grounded theory study works through overlapping phases of data collection, note-taking, coding, sorting, and emergent theme development (Dick). In the process of collecting and interpreting data, a point of diminishing returns or a saturation point is eventually reached, and subsequent interviews may add nothing more to the identified themes.

After each interview, the recording was saved on the library staff's shared drive, accessible by each investigator but not to staff outside the library. Each investigator independently reviewed the six taped interviews and extracted themes and statements relevant to the informationists' impact on the subjects' works. These elements formed the basic unit for the analysis process. The investigators then met to coordinate and categorize the identified elements. The investigators were largely in agreement, but they resolved differences by individually elaborating on their selected elements and building consensus to create or merge categories. The major themes discussed below emerged from these categories.

Results

Table 2 lists six themes, grouped into three categories, the skills of informationists, impact of informationists and perceptions regarding informationists and representative quotes from transcripts. These themes are discussed more fully below.

Skills of informationists

1. Literature Retrieval

Subjects clearly valued the informationists' ability to retrieve and evaluate the literature. This activity dominated informationists' activities. ("The most help that I've received has usually been on references.") In just this small sample, there was a wide variety of tasks in which informationists participated, including simple document delivery and reference checking, developing and executing the methods for review papers and meta-analyses, and turning a question from clinical rounds into a PubMed® query and summarizing the results.

Subjects referred to the informationists' "expertise," often stating explicitly that this expertise filled a gap for the team, despite the fact that team members held advanced degrees in other areas (see *Informationist as Team Member*, below). In particular, they appreciated the informationists' ability to find literature from databases other than PubMed, e.g., using bioinformatics databases or sources that contain publications outside PubMed's scope. ("It adds to the creativity tremendously by broadening the perspective on where we can get information....")

2. Informationist as Portal

Going beyond literature searching, informationists found databases, Websites,

scientific collaborators in academia, outreach partners in public libraries, and potential contacts in manufacturing. They also learned specialized scientific software, gave lectures over conference calls, and researched historical usage of medical jargon. When asked about future projects, subjects could foresee informationist involvement in running a lecture series and building a Web site. Subjects noted informationists' searching skills ("She's a resource, a go-to person."), their (perceived) privileged access to resources ("We do interdisciplinary type of stuff... She has access to databases that will help us search out those parts."), and their willingness to get really immersed in the task ("He was better equipped than most of the researchers were."). At the very least, subjects valued these non-bibliographic services, because they didn't "have the talent or manpower" in their own groups.

Impact of informationists

3. Saving time

Five of the six subjects specifically mentioned that the informationist saves them time. This efficiency derives from several factors: the informationist's expertise ("I don't have time, I don't want to spend the time learning ... when I've got someone to help me"); their accessibility ("For you to leave the unit, go down to the library, talk to a reference librarian ... it's just horrible."); or merely being someone else who can help ("You know, there's only so many searches you can do in the course of a few days"). Informationists also help researchers keep up-to-date in their fields by helping them develop weekly updates for their database searches and by notifying them of recent additions to the library's collections and resources.

4. Providing Training Which Impacts on Practice

A consensus emerged that training, both formal and informal, provided by the informationist is viewed as important and has a positive impact on research performance and practices. One informationist, for example, provides instruction in database searching, bibliographic management software, and evidence-based research to NIH Clinical Center nursing staff. As a result of evidence-based practice training, the staff are questioning some routines and procedures, saying, "Show me the evidence." Another informationist trains researchers in the use of software that helps identify specific genes and gene pathways, as well as linking to relevant literature. With his guidance, researchers created a network of gene pathways crucial to their study using this software.

The typical classes taught by informationists and other librarians are EndNote®, PubMed, Web of Science®, Scopus™, and Evidence-Based Practice. The full list of the library's training topics is available at <http://nihlibrary.nih.gov/ResourceTraining/default.htm?SelectedValue=Tutorial>. (One subject reported that training in software programs such as EndNote "makes paper writing much easier.") The informationists also provide updates on library resources and services. ("It would be more work staying up-to-date without the informationist service.") As with other services, the classes depend on the duties of the staff being served. Extramural staff who administer grants to researchers around the country might use Scopus and Web of Science to find bibliometric data for applicants and reviewers. Intramural staff who conduct their own research and follow patients in clinical trials may require literature regarding clinical care, social

science, or bioinformatics, and they are guided through the appropriate resources.

5. Effect on Library Usage

In general, the informationist service seems to be associated with higher library usage.

Themes	Representative Quotations
Skills of Informationists	
Literature Skills	<p>“[J]ust using tools and giving them to the biologist isn’t really working. Critical reading of literature is something that not every graduate student, although they should, is experienced in.”</p> <p>“It’s been very helpful, very valuable to have someone with her expertise.”</p>
Informationist as Portal	<p>“In my mind she’s a resource, a go-to person. So if I need something and she can’t do it, she’ll let me know how I can do it.”</p> <p>“I view the informationist service as a pathway to a variety of resources and to different perspectives.”</p>
Impact of Informationists	
Time	<p>“That’s her expertise ... how to get information and get the right information and get it in a way that’s not onerous, you know, where it takes you forever and a day.”</p> <p>“I don’t have time. I don’t want to spend the time trying to learn how to set up these [alerts] myself.... It’s a waste of my time.”</p>
Training – Impact on Practice	<p>His “willingness to take on programs and learn them has been immensely valuable. ... He taught other people in our group about [informatics software]. We referred [clinical] researchers to him for training.”</p> <p>“It would be more work staying up-to-date without the informationist service.”</p>
Library Usage	<p>“I do less and less, I just ask [the informationist].”</p> <p>“[N]urses are using library resources more as a result of informationist contact.”</p> <p>“I am using the library more through [the informationist].”</p>
Perceptions of Informationists	
Informationist as Team Member	<p>“The other thing that completely won us over is that ... For you to leave the unit, go down to the library, talk to a reference librarian, maybe get some help or some direction, and then fly back to the unit, it’s just horrible. People simply won’t do it. So _____, being a nurse herself and getting the lay of the land in the clinical areas, she goes to them and sits down with <i>them</i> at <i>their</i> computer (the clinical computer stations) right there in the clinic or the unit that they’re familiar with. She asks them questions and gets information there, logged in on their computer, so it’s always right there.”</p> <p>“It would be much less efficient [without the informationist], dealing with somebody that doesn’t know how our team functions and what are the major issues involved.”</p>

Table 2. Themes and Quotations from Interviews

Several subjects reported that they or their group were using library resources more since working with the informationist, though in at least two cases, this usage was essentially via the informationist services. In fact, there was one researcher who reported relying almost exclusively on the informationist to supply information needs. Since the informationist has been with his group, he stated, "I hardly ever go to the library anymore." And, in terms of online resources, "I do less and less, I just ask [the informationist]."

Perceptions of informationist

6. Informationist as Team Member

All those interviewed were enthusiastic with having an informationist as part of their team. Having an information specialist based in their work environment helped clinicians not only obtain access to needed information immediately, but also learn of relevant new library resources available for their use. Subjects reported a number of ways that informationists integrated into the group, including having a desk in the group's area; attending and/or presenting at seminars, rounds, and journal clubs; and coming to the group's work area to answer questions or provide training.

Discussion

Why do NIH staff use informationists? In the modern era of Google, ATMs, and 24-hour service stations, what compels a top scientist to trust someone else with part of their research? Through key informant interviews, six major roles played by informationists were identified: bibliographic expert, portal to unfamiliar resources, time-saver, teacher, library interface, and teammate. A strongly recurring theme in the interviews was the feeling that our subjects could not keep as close to the literature without an

informationist's help. Accordingly, numerous studies (reviewed in Dawes and Sampson 14; Coumou and Meijman 57) have found that time tends to be the biggest obstacle to health professionals finding information. When interviewed, one sample of nurses (McKnight 149) reported that time was not only a logistical problem but an ethical one when dealing with patients. Furthermore, a qualitative study by Brettle, Hulme, and Ormandy (27) found that even when librarians had helped health care workers retrieve information, time was still the most limiting factor in following through and applying that information to practice. In addition, researchers have cited many other obstacles to finding information (Coumou and Meijman 57-59; Covell, Uman and Manning 598; McKnight 149; Dawes and Sampson 14; Bennett et al. 3), which could be broadly grouped as either intrinsic (problems forming a search strategy or evaluating results, low expectations of getting results) or extrinsic (poorly designed indexes, unintuitive databases, cost).

Subjects generally reported that they were using library resources more since acquiring an informationist. This may be the result of raising awareness of available online products and services through training by the informationists. However, it may not have been clear to subjects whether the original question referred to usage of the physical library, the library's Website, or the resources available through the library. Another ambiguity was whether accessing resources vicariously through the informationist counted as library usage. It is thus unclear whether "effect on library usage" would be a useful measurement in future research, though it was established that users are using informationists as a third interface to the library's resources (besides the information desk and the Website).

Most of the other themes/roles identified describe functions or abilities of any librarian. The exception is the idea of the informationist as a teammate who joins the physicians/researchers in their place of work. As mentioned above, this was a key feature of the program in the minds of the interviewees, as well as Davidoff and Florance. In addition, becoming a team member helped the informationist to understand the user group's research area. By gaining additional knowledge of their work, the informationist could develop training programs, alerting services, and other information services that are specifically geared for their groups' specialties. The experience of the informationist program at Vanderbilt (Giuse et al. 250) has also been that although the effectiveness of the program still needs validating, it was better to have an informationist working alongside clinicians than each working independently.

Interestingly, another defining element of the profession, biomedical training, was not mentioned except by Subject #1, who appreciated that the nurse-informationist understood the demands on other nurses' time. It should be noted, however, that we did not explicitly solicit comments on this point in our interviews, though a separate study by our library (in preparation) shows that subject-area knowledge is indeed valued, particularly by long-term users of the service.

Interviews allowed the collection of richer and less structured input from subjects, but this method has limitations. For example, our subjects had to step away from work to be interviewed. This allowed them to focus their attention on the interview, but it also effectively removed them from environmental demands and stimuli that might have illuminated how the informationists were used and corroborated subjects' self-reports. Future studies might

include observations of the informationist-subject interaction, or at least of subjects engaging in information behavior for their work. Another aspect of interviewing is the limitation to the subjects' perceptions of reality. It could be argued that perception is actually what matters, since a well-stocked but unappreciated library is likely to lack support at budget meetings. To supplement the subjective perceptions from this study, quantitative data on literature search requests are being collected to provide a more comprehensive picture.

These interviews helped identify six features important to users. This information confirms that informationists should be ready to serve in a wide variety of roles for their users, roles which require technical skills as well as the ability to maintain long-term collaborative relationships. The six roles could also be the focus of marketing initiatives to additional NIH staff, since these are aspects that staff themselves recognized and appreciated. Moreover, the data suggest further questions. It would be interesting and helpful to verify, or even quantify, the time saved by informationists. By comparing the time savings and comparative salaries of patrons and informationists, it may be possible to place a monetary value on that time. The interviews revealed that many of the roles could be played by other librarians, and others could be provided by a well-designed and carefully maintained Website. The added benefits of personal contact, especially of being embedded with a group of users, should be explored further. For example, past experience (Whitmore, Grefsheim and Rankin 138) has indicated that informationist users are initially somewhat skeptical and request fairly routine tasks, but that they eventually request collaboration on more sophisticated and complex projects. A longitudinal study could explore how informationists and information providers in general, build

rapport and generate support from their clientele.

Conclusion

Informationists bring their librarian skills to research teams, aiding and complementing the skills of other team members.

Researchers value the time it saves them to have a teammate who finds information of all kinds, as well as one who can teach them to do their own information retrieval. These aspects should be explored in future research and promoted in future marketing.

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Appendix

Semi-structured interview schedule

What has this person done for you lately?

What is the value of having an informationist?

How would you have obtained the information you needed without an informationist?

Give an example of how an informationist has helped you.

In what environment has an informationist helped you (meetings; lab; rounds)?

Do you use the library more/less now that you have an informationist?

What additional roles do you see for the informationist?