Embedded Library Services: An Initial Inquiry into Practices for Their Development, Management, and Delivery

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Since the early 1990's, libraries in different types of organizations have explored different ways of decentralizing the delivery of services, by embedding librarians and their services in customer groups. Through a review of the literature and a survey of embedded librarians, we explore different forms of embedded library services in higher education, the health sciences, government, for-profit organizations, and nonprofit organizations. We find strong similarities across the board in the critical importance of library science skills, a mixture of similarities and differences in the types of services delivered, and great differences in funding and management.

1. Introduction

The year 1993 was a watershed year for the practice of librarianship in special libraries of all types. In that year, Tom Davenport and Larry Prusak published an article, "Blow Up the Corporate Library", in which they documented the marginalization of the library in many organizations. They concluded with eight recommendations to librarians. The first two were:

- Get out of the library, and into the business, and
- Actively assess who needs information, and who has it – then help them to connect (Davenport, 412)

In the same year, Michel Bauwens published the seminal and controversial "Cybrarian's Manifesto", in which he described his experiences as a librarian without a library. His role included working closely with a customer group, focusing on the use of

digital resources to meet their information needs, operating largely in a virtual teleworking environment, and participating in periodic face to face meetings with the group. He proposed the model of a "Cybrary Network" to provide for the information needs of an organization. According to this model,

> "A corporation that is serious about its information needs may contemplate having at its disposal a network of cybrarians (i.e. librarians able to navigate in 'cyberspace'), strategically located throughout the company. These well-trained, IT literate individuals will be integrated into management teams." (Bauwens, paragraph 10)

In the fourteen years since these publications, some librarians in different types of organizations have followed the recommendations of Davenport and Prusak, and the model of Bauwens, and yet have done so in quite different ways. Along the way, the word "embedded", as well as other terms, has been used to describe the position of librarians operating under these new modes of service.

As we started this research, we had in mind a model of embedded librarianship that very closely followed the recommendations of Davenport, Prusak and Bauwens. The model addressed the role and functions of the librarian, critical skills and competencies, organizational and reporting relationships, marketing and development, and funding of embedded librarian services.

In this model, the librarian's value is defined primarily by services that contribute important information to the customer group in a timely fashion, even anticipating unrealized and unexpressed needs. These services may include any or all of the following:

- In-depth research and analysis: solving problems by discovering, obtaining, reviewing, analyzing, and synthesizing relevant information. Examples include a competitive intelligence librarian analyzing press stories for clues about a competitor's strategies, or a medical informationist locating scientific literature to help a clinician make a diagnosis.

- Current news alerting: monitoring news sources and forwarding only news items that are both relevant and important to the customer group – stories that will have an effect on the customer's work. In the competitive intelligence example, the librarian would distinguish a competitor's significant, novel announcement from a routine update, and forward the former with suitable urgency.

- Capturing group knowledge and lessons learned: in a project team, the librarian may be the only member with both a substantial understanding of the group's work and a responsibility for information management. In this case, the librarian is the logical member to capture outcomes and

information from meetings, key decisions, and end-of-project lessons learned.

- Acquiring and organizing internal and external information: maintaining a well organized, information rich collaborative workspace and information resource for the group. The librarian applies information organization principles to make information in the group's repository more easily accessible, and may administer the group's virtual workspace with other tools, such as messaging, calendar management, and collaborative authoring.

Traditional "just-in-case" collection development and maintenance, especially the handling of physical print and media collections, are deemphasized in this model. The emphasis is on targeted, "just-in-time" delivery of information of immediate importance to the work of the customer group.

In this model, traditional library science skills and competencies must be combined with advanced knowledge of the customer's domain. It is the librarian's ability to retrieve and organize information that differentiates the librarian's contribution to the team from that of other members. It is the librarian's ability to understand the customer group's goals and problems that make that contribution valuable. It is the application of skills that changes; the underlying library skills themselves remain vital.

According to the model, the embedded librarian could report to either a manager of the customer group, or be a member of a centrally managed group of embedded librarians. The latter has several features to recommend it. Its first advantage is in hiring the best librarians for the job. An effective library manager is more familiar with the skills and competencies required of an embedded librarian than a customer manager, and thus better able to identify the best candidates for a position. Second, a common concern of solo librarians is that they lack a peer group. They have no one else in the organization with whom they can talk about information management ideas and issues. By establishing a centrally managed "embedded librarians" group, the organization can provide a mechanism for knowledge sharing and collaboration among librarians working with different customer groups. Third, and related to this, are reachback and workload balancing. Centrally managed embedded librarians are better able to reach out to their peers or to a central library staff for assistance in peak times, and the central library can manage temporary substitute services during absences of any given embedded librarian. (Bauwens (paragraph 10) envisioned the networked cybrarian as being networked not only with their customers, but also with other cybrarians in the organization.)

In this ideal model of embedded library services, marketing and funding both help the organization answer the question: how many embedded librarians do we need? A centrally managed service communicates with functional managers across the organization. It articulates the value and use of embedded library services. It updates and revises them, so that the services are appropriately deployed. A centrally managed service

also relieves the individual librarian of responsibility for marketing, so that the librarian can concentrate on services to current customers.

A centrally managed embedded library services operation can nevertheless be funded by its customers. Under such an arrangement, the library operates in effect as an internal contractor. This arrangement addresses a ubiquitous problem of libraries. Many librarians complain about being underfunded. Often, the problem arises because it is the librarians who must persuade their managers to fund library services. The managers may not be direct beneficiaries of the library services, and may have little incentive or motivation to allocate more funds to libraries. The librarians' justifications for increases may be seen as self serving, and lacking credibility, especially when customers are in different organizational units whose support for library funding may have limited impact on the funding manager. A way out of this box is to have the customer management commit to fund embedded library services that directly benefit the customer organization. Here, management interests and customer interests are aligned, and customer value leads to support that can translate directly into funding for embedded library services.

This was our ideal model of embedded library services. Two articles published weeks apart in 2006 suggested that practice was far more complex. The different uses of the term "embedded librarian" are well illustrated in these articles. In the April 1, 2006 issue of *Library Journal*, Karen Ramsay and Jim Kinnie, librarians at the University of Rhode Island, published an article entitled "The Embedded Librarian." In it, they described their initiatives to embed library instruction in URI's distance learning system, embed library assistance in virtual academic courses, offer reference services on instant messaging, and create a library blog. Just weeks later, the May 2006 issue of *Information Outlook* carried the article "Embedded in Systems Engineering", by Michael Moore, Information Analyst at the MITRE Corporation in Bedford, Massachusetts. In this article, Moore sets forth his experiences as an embedded librarian for the corporation's Systems Engineering Process Office. Moore, whose office was moved from the library to his customers' area, learned the concepts and terminology of the discipline of systems engineering, and he focused exclusively on developing a digital library and related services for his customer group.

After reading about these two "embedded librarian" initiatives, with very different services and approaches, we sought to develop a better understanding of the range and variation of "embedded librarianship". Specifically, we sought to discover the extent to which it matched our idealized model. To that end, we conducted a review of the professional literature, and a survey of librarians. This paper presents the results of those research activities. We consider it a first step in analyzing the management and practice of embedded librarianship. We hope that our results will help today's embedded librarians to develop their strategies, serve as a resource for those considering the introduction of "embedded" services in choosing the modes and approaches best suited to their environment, and provide useful background for others who study and teach about emerging forms of librarianship.

2. Literature Review

The literature review was conducted during the first quarter of 2007, using a variety of library and information science databases as well as the open World Wide Web. It was found that the literature described three distinct sectors in which differing forms of embedded librarianship were evolving: those of higher education, health sciences, and corporate special library/information services.

2.1 EMBEDDED IN ACADEMIA

Changes in academic library reference services were already underway in 1993. "Emerging from the increasingly electronic information environment are changes in the nature of reference service in college and university libraries. In academic settings large and small, new approaches and service models are being tested as librarians seek to support all members of their community." (Coder, 1993) In the ensuing years, two types of embedded librarian programs have arisen in academia: electronic collaboration and physical presence.

Most electronically embedded librarians in academic settings are associated with online courses. Embedded librarians "have begun to reach out to distance learning faculty by offering library assistance to their students." (Ramsay & Kinnie, 2006, 34) An academic librarian's description of this service model is simply "incorporating library instruction into an online class". (Matthew & Schroeder, 2006, 61) The librarians at the Middle Tennessee State University are typical in their depiction of the service: "What is it? A librarian added to your online course as a TA, Co-Instructor, or Co-Designer." (Middle Tennessee State University, Embedded Librarian, 2007). Academic embedded librarians are finding innovative approaches that employ electronic resources, moving services beyond "bibliographic instruction" and "information literacy." Typically, the librarian may perform these functions:

- First, engages the faculty to determine how the support needed for a particular class.
- Prepares tutorials, study guides or research finding aids
- Monitor social networking space to offer assistance to students and engage as an active participant in online course work.
- With subject faculty, provide descriptions of course assignments and of expectations.
- Suggest resources, set up training sessions on resources that incorporate the class requirements and push pertinent information to the course community.

Academic librarians in the virtual environment are using terms like "on-site", "just-in-time", and "point-of-need" to describe class-specific instruction (Southwell & Brook, 2004, 5) and embedded librarians are common in online courses in colleges and universities nationwide. Some are blogging and IMing and finding great success using

technology to reach students and support faculty both on and off campus. Hearn (2005) and others point to the increased visibility and "stature of the librarian as educator" as collaboration efforts grow between librarians and faculty members. Academic embedded librarians are also using outreach techniques to connect with faculty. "Brownbag lunches with faculty, workshops, participation in curriculum planning and attendance at college events are but a few of the techniques described in the literature." (Wagner & Tysick, 2007, 64)

The second approach is the employment of embedded college and field librarians who have physical proximity to the clientele they are dedicated to serve.

As far back as 1993, librarians at colleges and universities were discussing new physical arrangements to support restructured services. At the Library Solutions Institute, held at the University of California at Berkeley/March 12-14, 1993 and at Duke University, Durham, North Carolina/June 4-6, 1993, "Virginia Massey-Burzio, Head of Resource Services at Johns Hopkins University and formerly Head of Reader Services at Brandeis, described removing the reference desk and initiating a Research Consultation Service…The Research Consultation model introduces a new role for the reference librarian moving from a department store sales clerk model to that of a lawyer-client relationship." (Lipow, 1993)

In 1994 Virginia Tech instituted a College Librarian Program "in response to academic restructuring mandates… information professionals [were placed] in closer proximity to the largest group of information users on campus: the faculty, staff and students of the university's colleges." These librarians "were placed in offices within their colleges with the understanding that 75 percent of their time would be dedicated to serving their collegiate clientele." (Seamans & Metz, 2002, 325) Although this program has since adopted the term "field librarian", the dedication of a librarian to specific departments remains its central premise. (Wagner & Tysick, 2007, 64) In a discussion of the University at Buffalo experience, Wagner and Tysick indicate that they have had good success in the applying a similar model. The University set up reference services in the same physical space as that of seven departments over the last few years. The level of success for each effort differs, but is nevertheless significant. The authors state, "Above all, the pilot program demonstrated that face-to-face encounters have significant advantages…" particularly the visibility that the librarians gain, the good will they establish, and the opportunities that networking has availed. (Wagner & Tysick, 2007, 67)

Historically, colleges and universities have used departmental and branch libraries. The difference in the embedded or field model is the focus; the move from a library-centered paradigm to one that is customer focused. Virginia Tech's program, like others employing this approach, "is considered more user-centered than the typical liaison program. Unlike a traditional branch library, the collection remained centralized and collection efforts focused instead on electronic resources. This program combines high-tech with high-touch, as college librarians offer technical as well as traditional reference assistance." (Allen, 2003)

There are a number of program challenges independent of the setting in which the embedded librarian functions. They include time management, personality traits, space management, evaluation, and funding. However, a number of concerns are also specific to the embedded librarian's parent organization.

Academic embedded librarians deal with the perception that they are not "instructors" and that precious instruction time should not be taken up by their inclusion in online courses. Samantha Hines (2006, 217), among others, points to numerous writings that address this problem. They include studies and treatises that detail how to cajole faculty into collaborating with embedded librarians (Badke, 2005) and others that decry the fact that some tenured professors exhibit the attitude that they are capable of teaching their students the research techniques and sources necessary to support the students in their particular classes. (Hines, 2006, 217)

Technology does not always support the desired interaction that an embedded librarian believes would be most productive for a particular course, but decisions on resource acquisition and use are outside their area of control. Some academic embedded librarians are working around many issues until their programs can support the new paradigm. (Hedreen, 2005) Courseware commonly used in the academic setting does not naturally accommodate librarians and their services. Long asserts that librarians ". . . need to think hard about what services they wish to deliver to online environments and clearly articulate how they might be accessed from courseware systems." (2002) Currently, there is little consensus on how to fit the library into courseware. (Shank & Dewald, 2003)

Some institutions have attempted to establish the value of embedded librarian programs to their virtual community through user surveys. One such survey was performed at Middle Tennessee State University (MTSU). "In a spring 2006 survey of online students with an embedded librarian in the course, 92% said they would like to have a librarian in future courses." (MTSU, n.d.) Hearn (2005, 226) make a statement that might be applied to most of these programs, "To fully gauge the impact of embedding a librarian on student learning, further investigation is certainly warranted…but it is clear from this experiment that exposing students to the availability of resources…had a direct impact on immediately improving the quality of student research."

In the discussions regarding the value of the field or college librarian, the advantage most frequently mentioned is the increased visibility afforded by inclusion in the program. Wagner & Tysick point to the anecdotal evidence of success with services at the University of Calgary, the University of Minnesota and the University of Western Ontario. (2007, 64) Moreover, at the University at Buffalo, "faculty…spoke [of the program] to colleagues and visitors with obvious pride…" (2004, 14)

2.2 EMBEDDED IN HEALTH SCIENCES

Clinical medical librarians entered the world of patient care in the early 1970s. Later, the concept expanded to the specialist level, in which librarians became based in

laboratory or clinical settings. (Brown, 2004, 45) In medical settings the "embedded librarian" is often known as an "informationist". Davidoff and Florence (2000) introduced the idea, coined the term, described the training and challenged those in the medical community to establish pilot programs to make the profession a reality. Soon after their article, the concept was advanced by T. Scott Plutchak in October of the same year. Thereafter, the association held symposia and conferences and numerous discussions. In January, 2003 the concept of the "information specialist in context" (ISIC) was born. (Shipman, 2006) Marcus Banks, who was assigned as an informationist in 2004 at the New York University School of Medicine, laments the fact that "[t]he terminology itself is not settled" and that although the term is still commonly used in library circles, "[t]he Medical Library Association has shifted from the concept of an "informationist" to that of an "information specialist in context." (2006, 6)

Hersh (2002, 78) gives an extensive definition of skills required of informationists. He states:

> …such individuals must be aware of the vast array of information resources and the ways to access them. They must be familiar with medical journals, literature databases, medical textbooks, practice guidelines, and the growing number of "synthesized" evidence-based resources, such as the Cochrane Database of Systematic Reviews and Clinical Evidence. Informationists must know not only what these resources are but also work with the administration of their institutions to obtain access to them. They must also have expertise in searching these resources, from effectively using the Medical Subject Headings (MeSH) vocabulary to skillfully querying full-text resources that are not manually indexed… They must also have some familiarity with the clinical setting. Background in a clinical area (e.g. medicine or nursing) is very helpful by not essential. However, some basic understanding of human health and disease, along with a perspective on how the health care system and the professionals within it function, are paramount. Also required is an understanding of EBM [evidence based medicine], including the ability to phrase an answerable question, locate and retrieve the best evidence, and critically appraise and apply it.

The literature describes a number of roles informationists perform for the medical teams they support. "Some roles include finding information for evidence-based practice by attending rounds… teaching health care teams to search the literature, suggesting questions that need researching and delivering results of research in the form of data, articles, etc., recording decisions with policy implications, retrieving synthesizing, and reporting information, provide information to patients, providing SDI services, support for protocol design, support for educational efforts, defining standards for literature searches, needs assessment, data storage and retrieval, classification, cluster analysis, grant preparation, collaborating in research publication, IRB consultant…" (MLA, Executive Summary, n.d.)

There is an ongoing debate over the most effective educational background and training for informationists. Current discussions focus on such questions as whether a

library degree is necessary for effectiveness, or a training program designed for clinicians would produce equally effective professionals. This fuels the debate over what these individuals should be called. Nevertheless, both approaches begin with a core of knowledge. (Hersh, 2002, 77)

The issue of training brings to focus another challenge: acceptance. Homan and McGowan argue that a profession so tied to other highly refereed professions must establish formal criteria in order to be acknowledged. They say, “Perhaps the most frequent reason for the lack of acknowledgment of the value of the librarian in the clinical setting is the difference in academic credentials, specifically the M.D. versus the M.L.S. Most nurses do not have advanced degrees nor do physical therapists or respiratory therapists. Yet they are considered part of the health care team. All, like librarians, have professional degrees. All, like librarians, work with or for patients. All, like librarians, perform duties to enhance the quality of care. All, except librarians, are licensed and have passed the requirements, including formal examinations, to become credentialed in their specialty area. Licensure grants rights and ensures a level of accountability, which is not yet part of health sciences librarianship.” (2002, 83-84)

The National Institutes of Health (NIH) began to employ the informationist model in 2004. During a brown bag presentation for the Federal Library and Information Center Committee (FLICC), informationists from NIH spoke on their roles as embedded librarians in the medical arena. Suzanne Grefsheim, Director, Division of Library Services/NIH, and her embedded professionals described how their input affects medical discussions and laboratory research. Although tailored literature searches are still a big part of the informationists’ role, they are expected to go beyond providing search results to evaluating, synthesizing, and analyzing information in relationship to the cases at hand. Other services include support of research protocols and alternative animal testing models. (FLICC, 2005; Robertson & Holmgren, 2006)

Health services organizations are continuing to adopt this model. “Several academic and research health science libraries, such as Vanderbilt, Johns Hopkins, University of North Carolina, and University of Pittsburgh, have committed to the concept by developing fellowships and/or full-time infomationist positions.” (Robertson & Holmgren, 2006) Eskind Biomedical Library (EBL) at Vanderbilt University Medical Center (VUMC) has gathered anecdotal evidence that its program is thus far successful. “Initial subjective evaluation of informationists' performance by clinical team members showed that clinicians consistently rated clinical informationists' ability to function in the clinical environment, as well as the utility of the information they provided, at the highest levels.” (Florence, Guise & Ketchell, 2002, 3)

More work is needed on formal evaluation of the contributions of informationists, even though recent anecdotal reviews point to their input as significant. Wagner and Byrd performed a systematic and extensive review of the literature spanning 30 years evaluating embedded programs along with Clinical Medical Librarians (CMLs). They concluded, “The total amount of research evidence for CML program effectiveness is not great and most of it is descriptive rather than comparative or analytically qualitative.

Standards are needed to consistently evaluate CML or informationist programs in the future." (2004, 14)

Recent literature indicates that researchers are now beginning to address this issue. Nunzia B. Giuse, "in cooperation with the Center for Evaluation and Program Improvement (CEPI) at Peabody College of Vanderbilt… formally evaluated the role of [Vanderbilt's] [Clinical Informatics Consult Service] CICS in clinical decision-making and evidence-seeking behavior using a randomized pre/post design. While past studies have evaluated clinical medical librarians' roles, few if any studies have examined the effectiveness and utility of the new clinical informationist approach in sites where informationists are well-established… The randomized phase of the study ended in May 2006, and the team will be publishing results over the next several months." (Vanderbilt, Library Research, n.d.)

2.3 EMBEDDED IN OTHER SPECIAL LIBRARIES

Literature discussing the embedded librarian approach in for profit organizations, nonprofit corporations, government organizations, and similar special libraries or information services is sparse. Because special libraries are so diverse, the ways their librarians support their organizations is tailored to each environment. Further, there is neither an established nor debated definition for this model to which the library community subscribes. There is little documentation of the initial adoption of this model; one cannot determine if early adopters had more than a vague idea that others were also doing it. And there is little wonder, considering the numerous formal and informal job titles such an individual may hold. There are embedded librarians, yes; but there are also client-embedded services librarians, research librarians and librarians-in-context; there are project information specialists, and knowledge analysts, information analysts, business analysts and just plain analysts. (Marx, 2004) These titles reveal few if any distinctions in role and responsibility, though, because in business settings these professional titles are nearly interchangeable. Moreover, this individuals in these positions, whatever their titles, probably perform a core of functions to support their clientele, with only variations in the depth or level of a function.

The application and naming of the concept as it applies to special libraries traces back to the Annual Special Libraries Association Conference held in June, 2005. There John Peverley, Bain & Company, presented a briefing entitled, "Embedding Researchers in Case Team: The Bain & Company Experience". Peverley described how Bain's larger offices have teams large enough to require the services of researchers on case teams. Those researchers develop expertise, attend consultant staffing calls, interact in real time with customers, and are considered an integral part of small working groups, and act as a "Trusted advisor" to the team. (Peverley, 2005, 5-6) At the following year's SLA conference, management of embedded library services at the MITRE Corporation was presented in a presentation entitled "Moving to Client-Embedded Services: Building and Sustaining Embedded Information Services." (Shumaker 2006)

MITRE's approach provides one model for business or corporate settings. It is a pragmatic approach, addressing where the embedded librarian sits, and who pays the bill.

Shumaker, then in MITRE's Center for Information & Technology, proposes three defining characteristics of individuals in these positions. He says: "An embedded librarian: works exclusively for one client group over a extended period of time (or may have a small number of major, long term clients); is paid out of the clients budget, not the "library" budget; [and,] may have an office in the client's area, not the library." (2006)

A list of all the service roles previously mentioned in other sectors would, perhaps with the exception of clinical rounds, constitute a working list of plausible functions an embedded corporate or business librarian could be expected to perform. In his article, Michael Moore, an embedded librarian at the MITRE Corporation, points out the special effort he gives to tagging and linking web content, assembling news items, and capturing knowledge by summarizing the proceedings of meetings. (2006) Bruce Rosenstein, embedded at USA Today, says that, he sits in on story meetings each day and assures the audience that "ready reference … is alive and well" it's just the more difficult stuff that's not on the web or easily available that the reference librarian is called upon to find. (FLICC, 2005) To be most effective these librarians stay connected to their clientele by attending in-house meetings, reviewing information on current and prospective contracts and establishing personable professional contact with their user communities.

Embedded librarians in corporations face challenges that reflect their environment as well. Management in the parent organization "expects to be able to put numbers and dollar signs on most parts of an organization to ensure that each is really worth the time and money to keep." (Dempsey, 2002, 80) This situation drives authors such as Susan Henczel (2006) and Joseph Matthews (2003) to expound examples of measurement models and techniques that take into account the need of special librarians to relate their worth in quantifiable business-speak that non-librarian managers can understand. Nevertheless, the newness and diverse nature of embedded librarian services has made evaluation a difficult after-thought if a consideration at all.

Another challenge for embedded special librarians is that there are individuals in the corporate world who are responsible for very similar functions. Individuals conducting proactive, advanced or extended research for legal applications are most likely to be paralegals. The expansion of information technology in library service areas conflicts with IT specialists. "The point to be drawn from this is that, at least in academic and special libraries, the relationship between librarians and clients is not purely one of service, but bears resemblance to relationships with other groups in the workplace. Interprofessional conflicts of various types are not a new phenomenon for librarians, nor are they likely to diminish in the future." (Danner, 2004, 322) Clashes in function can occur as upper management grapples with the most cost effective way to acquire and identify the skill set they deem necessary to effectively accomplish the organization's goals.

2.4 COMMONALITIES

In an attempt to define the embedded librarian it is natural to point to possible elements in the librarian's job description that differentiate the position from others. However, the literature reveals few functions that could not or would not be part of the

service profile of any reference or research librarian. Beyond research, expanded roles such as stewarding database content, providing news alerts and RSS feeds, monitoring social network sites, teaching resource use, and being available via email, chat, or instant messaging (IM) are now common expectations of reference librarians. In the current climate of information overload, the ability to retrieve, synthesize, and report information is an essential skill. Based on the literature, the functions and services embedded librarians provide cannot be pointed to as determinant factor in defining the position.

There is, however, one factor to which many practitioners point: collocation. Whether it is physical or virtual, meeting the needs of the user at the point of need where ever that may be is critical to the embedded librarian service model. Moore says, "Being co-located with my customer organization was critical factor in my success." He goes on to explain that although he was initially assigned to work for a team, he was housed away from them and only knew a few people. Once he was co-located, he met the whole team and was able to engage in both formal and informal information sessions just because he was there with them. (2006, 2)

Further evidence is shown in both the virtual and physical worlds in which academic librarians work. Numerous papers describe projects at universities where librarians are pushing reference services into the virtual classroom. In a "Guest Editorial: Virtual Reference, Today and Tomorrow" Karen Ciccone briefly describes the various virtual reference efforts detailed in the ALA *Information Technology and Libraries* issue. Included are programs from Temple University, the Florida Distance Learning Reference and Referral Center, and support for distance learning at the North Carolina State University libraries. (2001)

In the physical world, Seamans and Metz (2002, 331) point to their librarians who are coresident in the academic buildings and indicate that "Virginia Tech… enthusiastically affirm that the benefits to their users, as well as to the libraries, have greatly outweighed the costs and suggest that there is a strong case to be made for transferability to other campuses."

The literature does not describe the "how-to" steps for the integration of this service model into an existing traditional library service. Many of the existing programs evolved from case-by-case requirements and happened more or less "on the fly". Nevertheless, a synthesis of the suggestions, considerations and concerns discussed in the literature imply several seemingly common practices:

- Begin by establishing the service in a single, well chosen group. Consider the perspective client groups' current relationship with the library, its location and space and its current research assistance needs.

- Request collocation with the team members to better interact with the researchers involved in the project team.

- Establish specific hours and policies for schedules that ensure your clients know when you are available.

- Interact with the customer group on what they want you to be able to do for them aside from the standard library research services; suggest services they may consider "outside the box."

- Build confidence and trust by doing your best, most efficient and effective job at all times. Let researchers know when a request entails particularly in depth or complex research or analytical work.

- Market your embedded librarian relationship to all members of the group. Ensure that new members understand your role. Determine why some individuals don't use your services and reach out to them with more tailored services.

- Regularly survey the team to stay aligned with their assumptions and to proactively address their needs. Try to think like your patron to target what they need.

- Establish a means for quantifying your value to the team for the purposes of evaluating the project and reporting to upper management.

3. Survey Results

3.1 METHODOLOGY AND DEMOGRAPHIC DATA

To gather consistent data for various organizations and sectors, we conducted an online survey. The full text is presented in Appendix A. It was administered using the online survey site surveymonkey.com from March 23 to April 5, 2007. The primary target population for the survey was the membership of the Special Libraries Association (SLA). SLA is a professional group of over 11,000 members who work in specialized libraries and other settings to provide information management and services. Many of its members work in nonprofit and for-profit corporations. Others work in college and university libraries, government agencies, and other types of organizations. Initial publicity went to the Division email lists of the Special Libraries Association's Leadership and Management and Knowledge Management Divisions, to the Washington DC Chapter, and to the Law Librarians' Society of Washington DC. Selected professional contacts known to act as embedded librarians or to have an interest in the topic were also invited to participate. All emails contained the request to forward to other interested parties, and during the course of the survey we received comments indicating that several other SLA and non-SLA groups received the invitation.

We received a total of 402 responses to the survey. Of these, 308 respondents characterized themselves as embedded librarians, and another 24 as managers of embedded librarians. Of the 308 who characterized themselves as embedded librarians, 68 did not answer any other questions. These were discarded, resulting in a total of 240 usable responses from embedded librarians, which were analyzed for this initial

presentation. Table 1 provides a full breakdown of responses. The analytical method for this initial presentation has been to inspect the distribution of responses to questions, rather than a thorough rigorous statistical analysis.

Two hundred of the 240 identified the type of organization in which they work according to one of four choices: for-profit (including corporations and other for-profit forms such as partnerships), not for profit, post-secondary educational, or government. Another 15 selected "other", and 25 gave no response. Of those who gave one of the four choices, roughly 40% were in for-profit organizations, with each of the remaining three categories accounting for about 20%. An inspection of the "Other" responses suggests that most could be categorized in one of the four categories provided. Exceptions include one respondent working in a private residence and another working under a joint appointment to a non-profit organization and a university. Table 2 provides the full, specific breakdown.

Table 3 shows that 91% of the embedded librarians responding have an advanced degree in Library Science. Eighty percent hold the Library Science degree without other relevant post-Baccalaureate education, while 11% hold both Library Science and another advanced degree. Of the 20 respondents (9%) reporting neither the Library Science degree nor other advanced relevant degrees, several said they are working on Library Science degrees currently.

Also of note, Table 4 presents the finding that two-thirds of respondents report functioning as embedded librarians for at least three years, while a full quarter have served in this role for over ten years. These data suggest that while the trend to embedded librarianship may be gaining momentum, it is hardly a new phenomenon and certainly not a fad.

3.2 WHAT DO EMBEDDED LIBRARIANS DO?

Our first question included a list of eleven services that an embedded librarian might provide. Table 5 summarizes responses for all embedded librarians and by sector. It shows the percentage rating each function as "Most Important" or "Very Important." There is broad consistency across sectors. In-depth research is considered the most important function by all groups. Ready reference and current awareness or news alerting services are ranked second, third, or fourth by all groups. Together, these three services represent a set of targeted information delivery activities: providing information at the point of need, as opposed to building and maintaining collections of information to be drawn upon in case of need.

One function, instruction, was rated inconsistently from sector to sector. It ties for first among academic embedded librarians, yet ranks no higher than third in other sectors. It ranks only sixth in the Corporate/For Profit sector. This result is consistent with the findings of our literature review, and can be explained by the parent institution's mission. Because universities have a teaching mission, embedded academic librarians often take responsibility for teaching research and information literacy skills within academic

courses. In the other sectors, teaching of skills, while often desirable, is not typically a strategic priority for the organization.

Another function rated inconsistently is competitive intelligence. It is ranked fifth among all functions by Corporate/For Profit sector librarians; 50% consider it "Most" or "Very" important. In contrast, only 3% of the academic librarians rate it highly. Again, this result is consistent with institutional priorities.

The low ranking of "managing a library of print materials" across all sectors is noteworthy. This function ranks only fifth in importance among the academic librarians who responded to the survey, and as low as tenth in the Corporate/For Profit sector. Taken with other results, this finding presents strong evidence that embedded librarians really have moved out of the library, and not taken the library with them. The fact that it ranked higher than "managing licenses for digital library resources" in only one sector provides further evidence that the critical information resources for library work are increasingly digital, not print.

Finally, a finding that runs counter to expectations was the relatively low ranking of knowledge management related functions. "Capturing internal knowledge" was ranked last overall, last in two sectors, and next to last in a third. "Knowledge management services not described above" ranked next to last overall. "Stewarding a collaborative virtual workspace" ranked sixth overall, but no higher than seventh in any sector. If, as Davenport relates, "many managers say the knowledge of their employees is a company's most valuable asset" (Davenport 1997, p. 17), one would hope to see librarians deeply involved in managing internal information flows. These data suggest that such may not be the case in many organizations.

Eighty respondents (one third of the total) contributed additional comments about their services. Some of them illustrate the wide range of roles and functions that an embedded librarian may be called upon to perform. Here are a few examples:

- Participate in cross agency workgroups. Assist project team in developing parameters for a project. Serve as an information broker to external organizations.
- Selecting systems and software that manage the flow of information through the organization. Also publishing and e-publishing functions. Collecting statistical data. Some GIS [geographic information system] functions.
- Providing types of services that departments may not normally associate with library functions, such as SEO [search engine optimization] and building out portions of the CMS [content management system] that deal with tagging (or indexing).
- teach KM 101 to SES [Senior Executive Service (U.S. Government executives)], train the trainer classes in facilitating CoPs [communities of practice], create curriculum in CoPs for agency
- scholarly communication process--everything from choosing appropriate journals to publish in to helping with EndNote output styles

- Developing surveys for government documents and first year seminar students.
- I do searches in our Access database of bibliographic records for our engineering staff and retrieve the items from the corporate library of engineering drawings, equipment manuals, and file folders filled with reports and correspondence. Soon I will be adding scanned docs to our EDMS [electronic document management system] for the use of our staff.
- Instruction in software (e.g. Microsoft SharePoint) that isn't necessarily Information Retrieval. Coordinating organizational updates on various successes and activities of the organization.
- I maintain my departmental intranet
- Participating in the planning and goal-setting for the team, providing information, analysis, and forecasting to support planning and goal-setting.
- I actually work in a database design team creating product databases. I provide Librarian informed decisions on data organization, search and retrieval.
- Formal project management (Rupp and six sigma methodologies) and business analysis skills.
- Project Management and facilitation; workflow charts, scenario building, wireframes, SWOT analyses.
- … serve on agency Technology Innovation Board.

3.3 ORGANIZATIONAL CONTEXT

The second question explored the organizational context of embedded librarians. Do they function as field agents of a central library? Are they independent operators, or captive employees of particular functional groups and departments? Are they in competition with their organization's central library? Does the organization have a central library? Table 6 summarizes these results.

The first finding is that the central library has not disappeared – although it appears to be fading in some types of organizations. While 88% of academic librarians report that the institution has a central library, only 51% of respondents from the Corporate/For profit sector, and 65% of government respondents, affirm this.

Given the lack of a central library in a significant minority of non-academic organizations, it is not surprising that about half of the non-academic librarians report having their primary offices collocated with their customers, not with other librarians. In the Academic sector, this proportion is only about one fourth. However, since 30% of academics have secondary offices collocated with their customers suggests that over half of embedded librarians in all sectors spend a significant amount of time physically out of a library, in an office area with their customer groups.

Other evidence supports the view that the customer organization predominates in the environment of embedded librarians. Forty percent of all survey respondents are supervised by a member of their customer group. This number ranges from a high of 50% for the Corporate/For profit sector to a low of 30% for academic librarians. In every category except Academic, more respondents report to a customer manager than to a

library manager. (It must be noted that many respondents appear to have skipped this question, for unknown reasons. Further research is needed to better understand these data.)

Similarly, about four in ten overall report that their customer groups pay the majority of their salaries. Again, the Academic sector is the outlier, with only 15% of respondents reporting this. Similar data are reported on the question of support for continuing education and professional development; here again the proportion receiving customer support is much lower in the Academic sector.

3.4 MARKETING AND MAINTAINING CUSTOMER RELATIONSHIPS

The essence of the embedded librarian role is its close relationship to a well defined group of customers. Therefore, after exploring what the embedded librarian does and how embedded library services are resourced and managed, we asked about the nature of customer relationships: how they are characterized, established, and maintained. Again, we found some surprising results. There was strong consistency from sector to sector, with Higher Education having some characteristics that set its embedded librarians somewhat apart. These results are summarized in Table 7.

The great majority of embedded librarian relationships are open-ended, meaning that they are intended to continue indefinitely. We had anticipated that particularly in the corporate sector, a significant percentage might be of fixed duration, such as the length of a specific project. However, the figures ranged from a low of 82% open ended in the Higher Education sector to a high of 98% in the Not for Profit sector.

We also found strong agreement across all sectors that embedded librarians meet with new members of the customer group to conduct personalized marketing of information services. For most groups, this personal contact seems to have significantly replaced the less personalized, more traditional library promotional activity of developing fliers, promotional web pages, or other promotional materials. Only slightly more than half (57%) of all respondents said they engaged in this activity, with a low of 44% in the Corporate/For Profit sector. In the Higher Education sector, by contrast, this was a very common activity: 85% of these respondents said they developed these materials.

This finding, in combination with others, suggest that embedded librarians in higher education have weaker relationships with customers, and in particular with customer managers, than those in other sectors. Overall, 66% of respondents said they meet regularly with the leaders or managers of customer groups, but barely half (52%) of Higher Education respondents said they do this. Similarly, half of all respondents (52%) said they provide written reports on their work to customer managers – almost two thirds (63%) of respondents in the Not for Profit sector do this. Yet only one third (33%) of those in Higher Education reported doing this.

Finally, this set of questions sought to clarify whether embedded librarians were truly embedded with a single customer group and able to dedicate their time to that group, or whether they had other duties that might distract them. The findings suggest that most respondents do indeed have multiple responsibilities. Overall, 72% noted that they are embedded with more than one customer group. This percentage is fairly consistent across sectors, ranging from 66% to 80%. A lower percentage, but still about half (51%) of respondents, report that they are responsible for outreach and developing new customers outside their embedded group. The concern is that maintaining multiple relationships, or having to market to others outside the embedded group, may detract from the librarian's ability to maintain strong embedded relationships. This concern raises the question: How many groups can the librarian be embedded with, and still be truly embedded with any of them?

3.5 SUCCESS FACTORS

The results of the last question in the survey are presented in Table 8. This question presented nine factors that could contribute to success as an embedded librarian. As in some of the other questions, we found substantial consistency in the responses across all sectors, with a few interesting differences, particularly in Higher Education.

Five of the nine factors were clearly rated more important than the others. All five were rated "Most Important" or "Very Important" by 85% or more of all respondents, and more than 80% of respondents in each individual sector. These five, which we term "critical success factors", are listed below in order of overall ranking:

- Interpersonal communication skills
- Library research and reference skills
- Information organization skills
- Information technology skills
- Knowledge of customer subject domain

After these, "Marketing skills" were ranked sixth overall and in every sector, with a range of 59% to 73% considering them "Most important" or "Very important". There was unanimity across sectors also on the bottom three factors. Less than half (45%) of respondents reported having a primary office collocated with their customers (Table 6); and about half (47%) rated collocation as "Most important" or "Very Important" to their success. About 40% of all respondents reported that their supervisor is a member of the customer organization (Table 6), and 43% rated the direct reporting relationship to customer management as a significant success factor. From the similarity in these percentages, we infer that those who are collocated and who have direct reporting relationships to customers find these factors important to their success.

Of note, the ranking of reporting relationships in the Higher Education sector was inverted from the ranking in all other sectors. Only 21% of Higher Education respondents noted a reporting relationship to customer management as a significant success factor, versus 43% overall. Conversely, 39% in Higher Education ranked reporting to central library management as a significant success factor, versus only 21% overall. This

difference is consistent with the finding (Table 6; Section 3.3) that many more Higher Education embedded librarians report to a central library manager than do embedded librarians in other sectors.

Forty-eight respondents (20% of the total) added comments on other factors they consider critical to their success. Two frequently mentioned factors were relationship building skills and project management skills, but the comments ranged very widely. Here is a sampling:

- Ability to adapt library/information organization skills to customers' business needs, in language they use and understand.
- Project Planning skills - knowing how to manage timelines, resources and dependencies for getting large scale projects accomplished
- Being considered a peer VS someone who works as suppport for the analysts
- Relationship building and trust. Ability to manage multiple projects and reprioritize tasks quickly & frequently.
- Patience, esp. for 'newly embedded' librarians -- it takes a long LONG time to convince people not accustomed to such services to actively make requests. So, you have to be proactive and on target!! The customers are the 'experts', they have their established information sources, so they think they already know it all ;-)
- Creativity and risk-taking, or a highly outgoing nature - it is essential to remain visible to your client group, and find ways to get involved in their projects
- Understanding of context customer groups work in(slightly different than subject domain)
- …*previous* knowledge is not necessary to get into the job, but certainly once you start, you should learn as much as you can about the domain
- Ability and willingness to filter information for customers--not 'here's everything on the subject' but 'here are the top three' (and here's why I think so)
- Flexibility; creativity; member of the team in all aspects not just as the 'librarian' but one who may have an idea that should be pursued.

3.6 WHAT TITLES DO EMBEDDED LIBRARIANS USE?

No discussion of the profession would be complete if it avoided addressing the subject of job titles. Do embedded librarians include “Librarian” or “Library” in their titles? Accordingly, we asked respondents to list their current job titles. The titles were then characterized as to whether they contained a variant of “librarian” or not. The results are given in Table 9.

Of the 204 who responded to this question, about 60% have titles that do not contain “Librarian” or “Library”, while the titles of 40% do contain these words. However, this rather even split masks a sharp variation between sectors. Only 25% to 30% of respondents in the For-Profit and Not for Profit corporate sectors use the “L words”. In higher education, the distribution is almost exactly the opposite, with over 80% using “Librarian” or “Library”. The distribution of titles for government respondents

falls in between. The range of titles given by those who don't use the "L words" was quite broad. Here is a sample:

In the For-Profit and Not for Profit sectors:

- Strategic Programs Specialist
- Senior Associate, Business Intelligence
- Information Analyst
- Senior Researcher
- Chemist, Information Management Analyst
- Market Research Specialist
- Consultant, Taxonomy and Metadata
- Manager, Information & Learning
- Business Development Consultant
- Knowledge Services Officer
- Coordinator, Information Resources
- Information Manager

In the Government sector:

- Program Manager
- Educational Outreach Specialist
- Economic Intelligence Specialist
- Informationist
- Information Architect
- Research Associate

Part 4. Conclusions and Recommendations for Further Research

4.1 CONCLUSIONS

The research has shown that the modes of development, management, and delivery of embedded library services are much broader than our initial model had envisioned. In particular, there are significant differences between the higher education sector and others. In no sector did we find that our model was fully supported.

In one respect almost all groups conformed to our model: the importance of library science knowledge and skills to their success were confirmed by survey respondents in all sectors. In the literature they appear to be in question only among some in the health sciences community. The model asserted, and all groups in the study confirmed, that fundamental information services and information management skills are broadly applicable and valuable within a wide range of organizations and in a variety of distinct roles. While some practitioners combine their library science education with other advanced education, many do not.

The model's assertion about the roles and functions of embedded librarians was supported to a significant degree. In depth research and targeted news alerting were both widely provided, as we expected. The importance of ready reference, which requires less depth of subject knowledge, was however greater than anticipated. Activities related to the maintenance of digital information resources were of medium importance. Responses about the importance of maintaining physical print and media library collections varied. Only the For-profit / corporate sector ranked it near the bottom, as we had expected, but no sector rated it above the middle tier (fifth or sixth) in importance. Across the board, the management of internal knowledge ranked much lower than our model predicted.

Assertions of our model about marketing, management, and funding of embedded library services were not supported, and there was substantial variation between sectors. Responses that 70% of embedded librarians in the survey have more than one customer group, and 50% are responsible for outreach and marketing to groups other than their primary customers suggest that embedded relationships are not as strong as they could be. These results appear to be fairly consistent across all sectors.

With respect to management and funding, our model included the idea of a centrally managed embedded library service that is funded by the customer. However, the data suggest a dichotomy between Higher Education librarians and all others, with none conforming to the model. In Higher Education, we see a pattern of centrally managed and centrally funded embedded library services. In other sectors, the embedded librarian is more likely to be both managed by and paid by the customer, and not a central library services operation.

The present research has clarified different aspects of the concept of "embeddedness". We now believe it is useful to speak of three aspects of embedded librarianship: physical embedding, organizational embedding, and virtual embedding. Physical embedding refers to moving the librarian's office into the office area of the customer group, and may be a full time change, as in many corporations, or part time, as appears to be more common in the Higher Education sector. Organizational embedding refers to the management and funding of the librarian, who may be supervised and funded either by the customer group or by a central library service. We had expected that supervision and funding could operate independently, as in a matrixed management model. By this model, the central library service could be hired and paid by the customer group to provide customized, embedded services, and to supervise the staff delivering them. However, the study has provided little evidence that funding and supervision are independent in current practice. Finally, virtual embedding refers to the delivery of library services in a virtual workspace exclusively for the use of the customer group. A course website in a university and a project team workspace in a corporation are both examples. The trend to virtual embedding appears particularly strong in Higher Education, with its increased emphasis on web-based distance education as a substitute for or enhancement of traditional classroom instruction. It is found in other sectors as well.

4.2 FUTURE RESEARCH

The amount of relevant literature, the unexpectedly strong response to the survey, and the many expressions of interest in our effort indicate that the theme of embedded librarianship deserves further study. Future research plans include further analysis of the present data, and the collection of new data.

The present survey has yielded much richer data than anticipated. The present analysis has been limited to an inspection of distributions, and the analysis of Likert-scale responses to an inspection of the distribution of "Most Important" and "Very Important" answers. A more rigorous analysis of these data may yield better insights.

In any future data collection, we would incorporate "medical facilities", whether for-profit, not-for-profit, or government sponsored, as a separate sector. In the present study, the literature review and the survey were carried out concurrently, so we did not have the benefit of understanding the special nature of embedded medical librarianship when planning the survey.

Other topics deserving further study include:

- Clarifying the impact of solo librarians on the data. In a sense, all solo librarians are embedded librarians.
- Deeper study of the development of embedded library services. How are they initiated and sustained? Comments by survey respondents suggest that few corporate libraries have created these services as a conscious strategy, while more libraries in higher education have done so. Focus groups or interviews with practitioners may help clarify this point.
- Better comparisons between the services provided by embedded and non-embedded librarians. It seems that the emphasis on in-depth research and analysis, and targeted news alerting, differentiates embedded from non-embedded librarians, but further study is needed to test this point.

Having demonstrated that the initial model of embedded librarianship is inadequate, we now need to develop a new one.

5. Data Tables

Table 1. Distribution of Total Responses		
	Response Total	Percent
Total Respondents	402	100%
Supervisors of Embedded Librarians	24	6%
Not Embedded	70	17%
Embedded Librarians (Unusable responses*)	68	17%
Embedded Librarians (Usable responses*)	240	60%
*Note: 68 Embedded Librarians did not answer any further questions; these were treated as unusable responses.		
Table 2. Sectors of Embedded Librarians Responding		
	Response Total	Percent (of those Specifying)
For-profit organization (corporation, partnership, etc.)	86	43%
Not-for-profit organization	41	21%
Post-secondary educational institution	33	17%
Government (NationalState/ProvincialLocal)	40	20%
Other (please specify)	15	
No Response	25	
Total	240	
Table 3. Educational Background of Embedded Librarians		
	Response Total	Percent (of those Specifying)
Advanced degree in Library Science (Master's or equivalent), without other relevant advanced degree	166	80%
Advanced degree (post-Baccalaureate) in a subject relevant to my customer group, without Library Science degree	9	4%
Both Library Science and other relevant advanced degrees	22	11%
Other advanced education (no Library Science or other relevant degree)	11	5%

No Response	32	
Total Usable Responses	240	
Table 4. Length of Experience as an Embedded Librarian		
	Response Total	Percent (of those Specifying)
Less than a year	23	11%
One to three years	50	23%
Over three but fewer than ten years	87	40%
Ten years or more	56	26%
No Response	24	
Total Usable Responses	240	

Table 5.

The following is a list of services that embedded librarians may provide. In your opinion how important is each of the listed services to your customers?

	All Responses		Corporate/ For Profit		Not for Profit Corp.		Higher Education		Government	
	Percent "Most Important" or "Very Important"	Rank	Percent "Most Important" or "Very Important"	Rank	Percent "Most Important" or "Very Important"	Rank	Percent "Most Important" or "Very Important"	Rank	Percent "Most Important" or "Very Important"	Rank
In-depth research and analysis projects (1 hour or more; require retrieval analysis and synthesis of information)	81%	1	84%	1	78%	1	79%	1 (tie)	85%	1
Ready reference (typically less than 1 hour; retrieval of facts citations specific data)	65%	2	59%	3	54%	4	76%	3	83%	2
Current awareness/news alerting (either regular e.g. daily or irregular as important information becomes available)	63%	3	62%	2	66%	2	67%	4	63%	4
Instruction in information retrieval and use tools and techniques	58%	4	48%	6	61%	3	79%	1 (tie)	68%	3
Managing licenses for digital library resources	45%	5	52%	4	46%	5	27%	7 (tie)	38%	5
Stewarding or maintaining a collaborative virtual workspace for the customer group (collecting and posting documents)	38%	6	44%	7	29%	11	24%	9	33%	8

Stewarding or maintaining a website where the customer group makes information available to those outside the group (either the general public or others in the parent organization who are not part of your customer group)	38%	8	37%	8	39%	7 (tie)	30%	6	35%	6 (tie)
Competitive intelligence	36%	8	50%	5	34%	9	3%	11	25%	9 (tie)
Managing a library of print materials	34%	9	26%	10	41%	6	39%	5	35%	6 (tie)
Knowledge management services not described above (explain below)	31%	10	31%	9	39%	7 (tie)	12%	10	25%	9 (tie)
Capturing internal knowledge of the customer group (recording and summarizing group meetings; documenting project “lessons learned” etc.)	29%	11	23%	11	32%	10	27%	7 (tie)	23%	11

Table 6.

In your current position which of the following statements apply to you? (Check all that apply.)										
	All Responses		Corporate/ For Profit		Not for Profit Corp.		Higher Education	Government		
	Percent "Yes"	Rank	Percent "Yes"	Rank	Percent "Yes"	Rank	Percent "Yes"	Rank	Percent "Yes"	Rank
My parent organization (corporationuniversity etc.) has a central library	63%	1	51%	1	73%	1	88%	1	65%	1

My primary office is located near the offices of my customers and not with the offices of other librarians.	45%	2	50%	2 (tie)	46%	3 (tie)	27%	6 (tie)	55%	2
My supervisor is a member of my customer group	40%	3	50%	2 (tie)	46%	3 (tie)	30%	3 (tie)	40%	4
More than half of my salary is paid out of the budget of the customer group I work with	39%	4	45%	4	46%	3 (tie)	15%	9 (tie)	45%	3
I am the supervisor of at least one employee	31%	5	28%	6	46%	3 (tie)	27%	6 (tie)	33%	6 (tie)
I have one or more staff regularly assigned to help me	30%	6	27%	7	49%	2	27%	6 (tie)	28%	8
My supervisor is a member of the central library management	29%	8	21%	9	17%	9	64%	2	20%	9
My customer group contributes at least part of the funding for my continuing education and professional development	29%	8	37%	5	27%	7	15%	9 (tie)	33%	6 (tie)
I meet regularly with other embedded librarians who serve different customer groups in my organization.	27%	9	24%	8	22%	8	30%	3 (tie)	38%	5
My secondary office is located near the offices of my customers and not with the offices of other librarians.	9%	10	3%	11	5%	11	30%	3 (tie)	18%	10
Part of my salary (less than half but more than zero) is paid out of the budget of the customer group I work with	6%	11	5%	10	10%	10	9%	11	10%	11

Table 7.

Which of the following statements about embedded librarians' relationships with customer groups are true of your relationship with your customer group?

	All Responses		Corporate/ For Profit		Not for Profit Corp.		Higher Education		Government	
	Percent "True"	Rank	Percent "True"	Rank	Percent "True"	Rank	Percent "True"	Rank	Percent "True"	Rank
My embedded relationship with my current customer group is open-ended (there is no expected termination date such as the end of a project or consulting engagement)	88%	1	91%	1	98%	1	82%	3	88%	2
I meet with new members of my customer group to find out their interests and information needs and to introduce my services to them	82%	2	83%	2	76%	2	88%	1	93%	1
I consider myself an embedded librarian with more than one customer group	72%	3	70%	4	66%	4	70%	4	80%	3
I regularly meet with a manager or leader of my customer group	66%	4	76%	3	71%	3	52%	5	65%	4 (tie)
I develop fliers brochures web pages or other promotional materials to make my customers aware of my services	57%	5	44%	7	51%	6 (tie)	85%	2	65%	4 (tie)
I provide written reports on my services to a manager or leader in my customer group	52%	6	56%	6	63%	5	33%	7	50%	7
I am responsible for outreach and developing new customers in addition to my existing primary customer group	51%	7	58%	5	51%	6 (tie)	45%	6	55%	6

Table 8.

Listed below are a number of factors that could contribute to the success of an embedded librarian in a customer group. How important do you think each of these is in your ability to be successful as an embedded librarian?

	All Responses		Corporate/ For Profit		Not for Profit Corp.		Higher Education		Government	
	Percent "Most Important" or "Very Important"	Rank	Percent "Most Important" or "Very Important"	Rank	Percent "Most Important" or "Very Important"	Rank	Percent "Most Important" or "Very Important"	Rank	Percent "Most Important" or "Very Important"	Rank
Interpersonal communication skills	95%	1	98%	1	98%	2	94%	2	95%	3
Library research and reference skills	93%	2	92%	3	88%	4	97%	1	100%	1
Information organization skills	92%	3	93%	2	100%	1	91%	3	85%	5
Information technology skills	89%	4	87%	4	95%	3	88%	4	90%	4
Knowledge of customer subject domain	85%	5	85%	5	83%	5	82%	5	98%	2
Marketing skills	64%	6	64%	6	59%	6	73%	6	68%	6
Physical collocation with customers	47%	7	47%	8	34%	8	55%	7	50%	7
Direct reporting relationship to customer management	43%	8	50%	7	51%	7	21%	9	33%	8
Direct reporting relationship to central library	21%	9	13%	9	20%	9	39%	8	16%	9

Table 9.

Job Titles With and Without "Library" or Librarian"										
	All Responses		Corporate/ For Profit		Not for Profit Corp.		Higher Education		Government	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
With "Library" or "Librarian"	87	43%	19	25%	11	30%	26	84%	21	58%
Without "Library" or "Librarian"	117	57%	56	75%	26	70%	5	16%	15	42%

NOTE: For tables 5-9, the "All Responses" columns include responses whose sector was "Other" or "No Answer".

Appendix A. Survey

Appendix 1. Survey Text

Welcome to the Embedded Librarian Survey!

The practice of embedding librarians in corporate teams and departments, specialized research teams, academic departments, law and consulting groups, and similar units seems to be successful and growing.

Recent literature in the library press provides a number of examples. Whether your title is "Knowledge Analyst", "Field Librarian", "Informationist", "Librarian-in-Context", "Client-Embedded Services Librarian", "Project Information Specialist", or something else, if a regular part of your work involves participating in a group, community, or organizational unit primarily made up of non-librarians, and you are the member responsible for the group's information, then you are one of its leaders.

This survey is intended to document how embedded librarians are operating in different types of organizations; what kinds of functions they are performing; how their work is administered, and what factors contribute to their success.

The results will be presented at the Special Libraries Association Annual Conference, June 2007, and perhaps in other venues. It is hoped that the information will encourage other librarians to consider this service model, and aid them in doing so.

Your participation is vital! Thank you!

This survey consists of 14 questions and will take you about 15 minutes to complete.

1. For purposes of this survey, we define an "embedded librarian" as one who is regularly assigned to work with a community, team, or organizational unit and provide highly customized information services to that group. Examples would include (but are not limited to):

--A librarian assigned to a specific research institute in a university

--A librarian who regularly spends time in a specific academic department of a university, working with faculty on their research information needs

--A librarian at a management consulting firm who is regularly assigned to work on project teams as the "information expert" on the team

--A librarian who regularly is assigned to provide information management and services to a specialized center of technical expertise in a corporation

Do you consider yourself an "embedded librarian"?

Yes
No, but I supervise embedded librarians
No, I am not an embedded librarian and do not supervise embedded librarians

3. The following is a list of services that embedded librarians may provide. In your opinion, how important is each of the listed services to your customers?

	Most Important	Very Important	Somewhat Important	Less Important	Not At All Important; Do Not Provide
In-depth research and analysis projects (1 hour or more; require retrieval, analysis and synthesis of information)					

Ready reference (typically less than 1 hour; retrieval of facts, citations, specific data)

Current awareness/news alerting (either regular e.g. daily, or irregular as important information becomes available)

Capturing internal knowledge of the customer group (recording and summarizing group meetings; documenting project “lessons learned”, etc.)

Stewarding or maintaining a collaborative virtual workspace for the customer group (collecting and posting documents)

Stewarding or maintaining a website where the customer group

makes information available to those outside the group (either the general public or others in the parent organization who are not part of your customer group)

Managing a library of print materials

Managing licenses for digital library resources

Instruction in information retrieval and use tools and techniques

Knowledge management services not described above (explain below)

Competitive intelligence

4. If you provide other important services omitted from the previous list, please list them here.

5. In your current position, which of the following statements apply to you? (Check all that apply.)

My parent organization (corporation, university, etc.) has a central library

My supervisor is a member of the central library management

My supervisor is a member of my customer group

I have one or more staff regularly assigned to help me

I am the supervisor of at least one employee

More than half of my salary is paid out of the budget of the customer group I work with

Part of my salary (less than half but more than zero) is paid out of the budget of the customer group I work with

My customer group contributes at least part of the funding for my continuing education and professional development

My primary office is located near the offices of my customers, and not with the offices of other librarians.

My secondary office is located near the offices of my customers, and not with the offices of other librarians.

I meet regularly with other embedded librarians who serve different customer groups in my organization.

None of the above

6. What is your job title?

7. Which of the following statements about embedded librarians' relationships with customer groups are true of your relationship with your customer group?

	True for me	Not true for me	Not sure / Don't know
I consider myself an embedded librarian with more than one customer group			
I provide written reports on my services to a manager or leader in my customer group			
I develop fliers, brochures, web pages, or other promotional materials to make my customers aware of my services			
My embedded relationship with my current customer group is open-ended (there is no expected termination date, such as the end of a project or consulting engagement)			
I regularly meet with a manager or leader of my customer group			
I meet with new members of my customer group to find out their interests and information needs, and to introduce my services to them			
I am responsible for outreach and developing new customers in addition to my existing primary customer group			

8. Listed below are a number of factors that could contribute to the success of an embedded librarian in a customer group. How important do you think each of these is in your ability to be successful as an embedded librarian?

	Most Important	Very Important	Somewhat Important	Less Important	Not at all Important	Not sure / Don't know

Marketing skills

Direct reporting relationship to central library

Direct reporting relationship to customer management

Information organization skills

Information technology skills

Library research and reference skills

Knowledge of customer subject domain

Interpersonal communication skills

Physical collocation with customers

9. Please add any critical success factors we failed to list in the previous question.

10. Please make any other comments about your embedded librarian role that we have failed to ask about.

11. I work in (choose one):

For-profit organization (corporation, partnership, etc.)
Not-for-profit organization
Post-secondary educational institution
Government (National, State/Provincial, Local)
Other (please specify)

12. My educational background includes (check all that apply):

Advanced degree in Library Science (Master's or equivalent)
Advanced degree (post-Baccalaureate) in a subject relevant to my customer group
Other advanced education (explain):

13. How long have you done "embedded librarian" work? (Include past customer groups and past employers in addition to your current one.)

Less than a year
One to three years
Over three but fewer than ten years

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