Author(s):	Forsman, Maria; Ndinoshiho, Joseph; Poteri, Eija
Title:	Research support services of University Libraries
Main work:	Empowering People : Collaboration between Finnish and Namibian University Libraries
Editor(s):	Iivonen, Mirja; Helminen, Päivi; Ndinoshiho, Joseph; Sisättö, Outi
Year:	2012
Pages:	180-200
ISBN:	978-951-44-8978-5
Publisher:	Tampere University Press
School /Other Unit:	Library
Item Type:	Article in Compiled Work
Language:	en
URN:	URN:NBN:fi:uta-201304041075

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RESEARCH SUPPORT SERVICES OF UNIVERSITY LIBRARIES: TODAY AND IN THE FUTURE

1. Introduction

The purpose of this chapter is to discuss and compare research support services in the Helsinki University Library Tampere University Library in Finland and in the University of Namibia Library. One of the main tasks and functions of university libraries is to create good conditions for research and support researchers in their work. Traditionally libraries have supported researchers by buying books and journals for their use, offering access to the material and providing information services such as information retrieval and training in information literacy. Since 2000 the role of libraries has been changing due to many profound changes in information technology, universities, Internet, in the new working cultures of researchers and also global changes. In this chapter we describe the present research support services in our libraries and consider the future and the role of libraries in research communities. This topic is important because it provides library managers with useful insights to consider when planning information services for researchers.

2. Diversity of research support services

Supporting research is a key issue in academic and research libraries. Library research support services can be viewed as specific information services provided by a particular library to promote research by meeting the unique information needs of the researchers within a particular institution. They include, for example, sessions where librarians provide instruction on data management software, information retrieval assistance from a new database or new features in a database already subscribed to by an institution, advice on open access and bibliometrics.

In providing these services, libraries are always mindful of the fact that researchers and their needs are not identical. Researchers in different fields of science and disciplines have different research cultures, different ways of using library resources and different information needs (Talja & Vakkari & Fry & Wouters 2007). For example, in science and medicine the research community is very international, while often in social sciences and humanities both research problems and communities may be national and local. When research support services are organized in university libraries, it is important and useful to know about the way researchers work and what kind of networks they have (Forsman 2005). Understanding this difference in research cultures between branches of science gives us better opportunities to develop research support services in university libraries.

For many years libraries have offered traditional research support services such as acquiring library materials (books, journals etc.) for ongoing research as well as preparing for future research. Libraries further afford researchers the opportunity to find and use library material. For this libraries have means like cataloguing, subject description and, finally, giving access to the material either by lending printed material or by offering access to e-material on the net.

Academic and research libraries also provide different information services for users. When users' own information searches of databases

were impracticable, information specialists offered them information retrieval services. User education and training in information literacy can also be seen as a traditional form of research support services.

Doctoral students and researchers may not be the easiest group to reach. Poteri (2007, 61–63) reported that researchers often seek help from colleagues before approaching the library. Similarly, they sometimes need advice or encouragement from a colleague before starting to use a new library service.

The problem of doctoral students abandoning their studies, and how the academic library may better support such students has been researched by Colleen S. Harris (2011). She found that library instructions do perceptibly improve doctoral students' research skills and performance. According to her literature review, doctoral programs and academic librarians were formalizing partnerships in many universities. The models of research skill instruction included online tutorials, one-shot workshops, course integration and one-on-one individual consultations. Individual consultations were also called "a personal librarian" or "a personalized research clinic". An important finding was that a tailored approach was essential for doctoral students, as class instruction was too advanced for some and not advanced enough for others.

While many students and researchers have learned themselves to conduct information searches on subject databases, new needs and challenges have emerged in the area of the information support services the library provides to researchers. Haglund & Olsson (2008, 52) argue that "to be able to further develop the functions of the university libraries, it is necessary to be attentive to the changing needs and methods of work of younger researchers, otherwise university libraries cannot contribute to the competitiveness of its university research". Meanwhile Hart and Keinveldt (2011, 40) also claim that "librarians need to recognize that different disciplines or domains have different requirements and that the expectations of senior established researchers might well differ from those of young PhD students".

These new needs relate, for example, research data management and archiving, bibliometric analyses and research evaluation, supporting publishing, likewise new forms of information literacy training for postgraduate students and researchers. Publishing and information literacy are discussed in more detail in other chapters in this book (Sisättö & Mäki & Heikkilä & Katjavivi 2012; Helminen & Katjihingua 2012). We therefore concentrate in this chapter on other aspects of and approaches to this issue. Table 1 illustrates library support for research communities (Forsman 2011).

Table 1. Research support services of university libraries

Research communities	**Library support**
Research problem and research questions	Earlier research available
Collecting research materials	Data services in various forms
Research process	Library as space and services
Writing up research results (book, article)	Supporting publishing (open access, e-archives, printed)
Research evaluation	Bibliometric services

3. Research support services at the Helsinki University Library

Helsinki University Library has gone through huge organizational changes during the 2000's (Sinikara 2010). In the 1990's there were more than one hundred faculty or department libraries at the University of Helsinki. As a result of international evaluations and effective planning processes by library staff, a new library organization called Helsinki University Library (HULib) was founded in 2010. It con-

sists of four campus libraries and joint services. HULib is the largest multidisciplinary university library in Finland.

One goal and result of these changes was to develop better research support services – both traditional and new. The idea has been to be reactive and also proactive to researchers' needs.

Research data – the role of library

In the last 10–15 years the question of research data has received more attention than before in the scientific world. There have been new demands from sponsors and publishers. Now, when most of the research data is in digital form, it should be archived and open to all. Thus working groups have been set up in universities in order to find solutions to this problem.

During the last couple of years there has been a working group at the Helsinki University Library that continued the work of a university level research data working group. One of the basic tenets was that different fields of sciences entail differing situations both in data archiving and in the type and extent of the data. Natural sciences and medicine are more international, and some of them – like astronomy (http://www.astro.caltech.edu/~pls/astronomy/archives.html) – have huge international data archives, while social sciences often address national research questions and also national data archives, like the Finnish Social Science Data Archive (http://www.fsd.uta.fi/en/). Moreover, these social science data archives engage in extensive international cooperation both in metadata production, data sharing and service development.

The research data group of Helsinki University Library conducted a pilot study with a research group for "Groundwater-surface water interaction at Lake Pyhäjärvi, SW Finland" (The Research data project of Helsinki University Library 2012). In the conclusions of the report the working group proposes for the role of Helsinki University Library the integration of data management services, coordination and support tasks connected with metada-

ta and interfaces of systems, some part in education, information sharing and services as well as preparation of learning materials. All this means new skills and new roles for information specialists.

Bibliometric services and research evaluation

The role of university libraries as an actor in bibliometrics has been discussed in recent years (e.g. Andrés 2009). Helsinki University Library (HULib) was asked to be a partner in the international evaluation of research and doctoral training at the University of Helsinki 2005–2010 (Forsman 2012). Bibliometric analyses – especially citation analyses – have given rise to much discussion and criticism among social scientists and humanists. The reasons have been that researchers feel that citation analysis is often unfair to these sciences, because it does not give a good enough picture of publishing in these fields of sciences. The coverage of citation databases – Web of Science and Scopus – of the main publications in these fields is poor. Also, in humanities and social sciences monographs continue to predominate, and monographs are not included in these article databases.

Thus at the University of Helsinki, researchers' opinions were taken into account during the research evaluation. The office for the international evaluation of research and doctoral training requested analyses by HULib of those research groups and fields of sciences that are weakly represented in the Web of Science. The research database TUHAT includes all the publications and other research activities that researchers have regarded as important. On the basis of this data information specialists of HULib made the following analyses:

1) Number of authors/publication/year as a table; a pie of authors/publication in the period 2005–2010

2) Language of publication/year; a pie of language of publication in the period 2005–2010

3) Articles/journal/year; journals have been compared by ISSN with the Norwegian, Australian and ERIH(2007–2008) journal ranking lists; number of articles in ranked journals

4) Publisher/monograph type (according to TUHAT database); the monographs were compared with the Norwegian publisher ranking list and then counted the number of monographs published by a leading scientific publisher (2) or a scientific publisher (1).

5) Conference publications (from TUHAT database) especially in computer sciences; compared with the Australian conference ranking list. These analyses complement the analyses and lists of publications of the research groups. If necessary, there are some additional analyses and notes concerning the publishing culture of the scientific fields. (Forsman 2012, 261.)

The HULib participation in the evaluation process was a new departure for the Library, resulting in novel cooperation between the Library and the University of Helsinki research administration. The HULib analyses were seen as a valuable, high quality resource. They emphasized the Library as a neutral partner for the research community, with sound experience of managing scientific information. The success was made possible by a network for bibliometricians from all four HULib campus libraries, sharing a learning process and pooling their expertise on disciplines with widely varying publishing cultures. (Forsman & Isaksson & Hakala 2012.)

Knotworking with researchers – a new approach

Knotworking could be described as a model of organized problem solving, which is more flexible than teams and projects, but its scope is broader than traditional information services. The library staff of HULib wanted to develop closer relationships with users and to experiment with new working methods for collaborating with users. The Library therefore mounted a common project with Professor Yrjö Engestöm and his research group. Professor Engeström developed the idea of knotworking as a method of collaboration and co-working. (Engeström 2008.)

The pilot project started in the Viikki Campus Library in 2009–2010 and continued in the City Centre Campus Library in 2010–2011. The aim was to create new kinds of partnership between libraries and research groups, knotworking. There were four different research groups from different fields of science: Finnish Language Studies, Gender Research, Cognitive Science, also Communications Law. The knotworking groups worked in such a way that the library staff co-operated in one group with Engeström and his team, then library staff worked together with research groups, and finally there was a steering group. (Karhula 2012; Engeström & Kaatrakoski & Kaiponen & Lahikainen & Laitinen & Myllys & Rantavuori & Sinikara 2012.)

The most important results of the knotworking projects were the extended range of services for researchers, changes in librarians' working methods, and a new organizational model for the campus libraries. The City Centre Campus Library continued to develop its services for researchers after the pilot project. Library personnel moreover applied the knotworking method in other projects, such as the bibliometric project.

4. Research support services at the Tampere University Library

The Tampere University Library is a multidisciplinary scientific library including the main library and two department libraries. It supports the whole University community and its goals by providing information, content and services for researchers, teachers and students.

"Book an Information Specialist" service

Teaching personnel and doctoral students often require individual assistance beyond that traditionally offered at a reference desk or taught in information literacy classes. Since 2009 the information specialists in the Department Library of Health Sciences of Tampere University Library have conducted research consultations called "Book an Information Specialist". Because these personal consultations became popular, the service was extended to the Department Library of Humanities and Education and to the Main Library.

University staff and teaching personnel, as well as students writing their master's theses can now book a free one-hour consultation on the databases or other information resources by completing a web form. "Book an Information Specialist" consultations are tailored to meet the needs of individual researchers or research groups. The goal is not to do information retrieval for customers, but to assist them in developing the information skills they need, and to empower them to independently go further in their information seeking. More experienced researchers may prefer presentations of new databases or new features in databases they have already used.

Table 2. Statistics on "Book an Information Specialist"

Tampere University Library: "Book an Information specialist" (2011)	Main Library	Humanities and Education	Health Sciences	Total
Doctoral students, researchers and faculty	24	7	39	70
Graduate students and other	27	11	71	109
Total	51	18	110	179

Table 2 presents the numbers of customers served in research consultations by information specialists in the Main Library, the Department Library of Humanities and Education, and the Department Library of Health Sciences in 2011. The year 2011 witnessed the introduction of the service in all the library sections. Over half of the customers were graduate students pursuing their master's theses or other studies. The researchers had not yet found the service as often as might have been desired.

"Book an Information Specialist" as a concept is a fairly new service but, of course, researchers have always consulted and sought advice in the scientific libraries. According to the international literature such a new service concept can be dated to the beginning of 21st century. For example, researcher consultations began at the Mississippi State University Libraries in 2001. The purpose was to provide advanced searching techniques for graduate students and an overview of resources for new faculty. Usage data from Mississippi State University reports that during the first year 2001–2002 the largest user group was graduate students, who requested 65% of the sessions conducted (Lee 2004, 170–179). This concurs with the results of the first year in the Tampere University Library as seen in Table 2. Graduate students were also the largest user group in Tampere. At the Tampere University Library the aim is to provide information seeking

classes in doctoral programs on a voluntary basis. However, personal consultations will still be needed in addition to classes.

The marketing and promoting of the research consultations were key issues considered at the Mississippi State University Libraries. A person-to-person approach gave better results than flyers or web pages (Lee 2004, 177). Graduate students especially seemed to market research consultations to each other, which increased the numbers of graduate students as customers.

Bibliometric pilot in Tampere

As in Helsinki, research support including research evaluation and bibliometric skills have also emerged as a theme at the Tampere University Library in recent years. They are emphasized in the strategy 2010–2015 of the Tampere University Library (Tampere University Library Strategy 2010–2015).

The University of Tampere will conduct a thorough research evaluation in 2014. This will likely be a process affording the University Library an opportunity to support the research community if the skills and know-how of librarians in the field of research assessment are sufficiently convincing. Traditionally, librarians have used citations databases, such as Web of Science (WoS), but they do not know as much about the bibliometric analysis used in most research assessments.

After a couple of bibliometric training sessions and contacts to the Helsinki University Library and to the Library in the Tampere University of Technology (TUT) in 2010–2011, a plan was made to carry out a bibliometric pilot at the Tampere University Library where the information specialists of the library could practise bibliometric calculations in proper conditions. The School of Information Sciences volunteered to be a subject of a bibliometric analysis. It was bilaterally agreed with the School that all peer-reviewed publications of the

School from the years 2008–2010 and the citations they gained during the years 2008–2011 would be included in the pilot. At the Library, four information specialists were chosen to carry out the project but soon an IT Expert was also needed on the team.

The work carried out at the University of Helsinki (Forsman & Lahikainen 2011) and Tampere University of Technology (TUT Research Assessment Exercise 2011) gave good examples to follow. The content of the pilot was decided as follows:

- number of items published in 2008–2010
- co-authoring of publications
- publication types
- the number of citations drawn from Web of Science Wos), Scopus and Google Scholar (GS) (2008–2011), self-citations excluded
- citations per publication, self-citations excluded
- number of uncited publications
- number of self-citations
- 25 most used scientific journals and their impact factors, likewise their categories in the Finnish Publication Forum Project
- 25 most used conference proceedings and their categories in the Finnish Publication Forum Project

It was agreed that the analysis would be based on the affiliations of the researchers. The basic publication data were drawn from the publications register of the University of Tampere. It was also decided that fractionalization of citations was not to be used but that all the citations would be counted in full to the credit of the School in spite of any outside co-authors.

Already at the early stage of the pilot the team became convinced that the traditional WoS alone would not be good enough for the source of citations. Scholars in the field of information sciences typically publish in conference proceedings that are not covered in WoS. The team considered that Elsevier's Scopus would improve the number

of citations for publications. The bibliometric literature even presents Google Scholar (GS) very positively as a source for scientific citations (see for example, Bar-Ilan, 2010). Pauly and Stergiou (2005) also suggest that GS could replace WoS as a citation database. At the same time, we were acutely aware of weaknesses in the data and background information of GS. Lacking quality control and low scholarly value of some of the unique materials found in Google Scholar have been discussed in earlier surveys. (Meho & Yang, 2007.)

The results of citation calculations yielded interesting and valuable information to the School of Information Sciences. The significance of Scopus was proved because 98 citations were drawn from Scopus in cases when WoS did not include the publication in question at all. The opposite was true to only alimited extent: WoS included a dozen publications not included in Scopus, but only one or two citations were drawn from them. GS proved to be a laborious and unsure tool for citations. However, GS often included conference proceedings that the other two databases did not recognize. Meho and Yang (2007, 2115) state that GS identifies 53% more citations than WoS and Scopus combined in the field of library and information science. According to them (2007, 2123), although both Scopus and GS help identify a vast number of citations not found in WoS, only Scopus radically changes the ranking of authors.

5. Research support services at the University of Namibia Library

The University of Namibia (UNAM) is a relatively young university, established only in 1992 with the initial focus on undergraduate degree programs. However, the last ten years have seen an increase in postgraduate programs and research activities by university researchers. Consequently this has challenged the UNAM Library to take into

account the distinct information needs of the research community in planning information services and collections development. To remain relevant to this important group of users, the Library was compelled to address the challenging situation prevailing at that time.

Apart from traditional library services such as reference services, inter-library loan, information literacy training, and suggesting new resources for acquisition, the Library deemed it essential to establish particular information services for the exclusive use of researchers. The specific services instituted to support researchers include personalized consultation with subject librarians and literature searches, and selective dissemination information (SDI). Additionally, unlike the undergraduates, postgraduate students and academics are accorded certain privileges, such as longer lending periods to allow them more time to consult library materials.

Personalized consultation and literature searches

The subject librarianship concept was conceived in 2008 at the UNAM Library. As a result, each professional librarian was assigned a particular faculty to serve. This development came with a special emphasis on strengthening the library-faculty relationship. While the intention was to provide information support to each member of a given faculty including the undergraduates, some subject librarians took the initiative to better understand the specific information needs of researchers.

A research support service was established whereby researchers could seek librarians' assistance in conducting in-depth literature searches. Consultations with researchers are conducted away from the reference desk, which is heavily dominated by undergraduate students. Anecdotal evidence suggests that this service became popular among the research community, presumably because they saw its value in getting relevant materials for their research projects. It is, how-

ever, important to stress here that searching literature for researchers should be accompanied by intensive information literacy training. This would provide researchers with information skills essential for lifelong learning.

Selective dissemination of information

Another important research support service emanating from the strengthened library-faculty relationship is the selective dissemination of information (SDI). With this service, some of the subject librarians became proactive by learning more about researchers' activities. The intent was that once they knew the researchers activities then they could easily customize information delivery in accordance with researchers' specific information needs. For example, a librarian would search electronic resources on a regular basis and send the relevant information located to a particular researcher by email. Similarly, information about new acquisitions of books was conveyed to researchers. SDI proved to be a useful strategy in keeping researchers abreast of the latest developments in their respective fields of specializations.

The Library also organizes regular training workshops for researchers on the effective use of electronic resources, including the locally developed database for UNAM's dissertations and theses. However, the absence of an assessment strategy for such workshops means that it is not yet known whether they actually achieve the desired outcome. Furthermore, because of the improved relationship with the research community, it was possible for the Library to work closely with the University Research Unit in evaluating the usefulness of Science Direct and Scopus databases before subscription began in 2011.

New approaches in modern librarianship require librarians to incorporate users' perspectives into planning services. This means that the Library's services should be developed with users rather than for

users. An essential departure point of this approach is to be as much inclusive of the intended audience as possible. Thus, consolidating the relationship with researchers is an important step towards a better understanding of their information needs. Mantora (2001, 101) asserts that "regular communication with researchers will help the library to keep track of changes happening in the research landscape".

It is imperative that UNAM Library conduct regular investigations to determine the information needs of researchers, paying particular attention to what could distinguish their needs – be it different disciplines or novice versus experienced researchers. The UNAM Library is advised to firstly develop additional innovative information support service for researchers and secondly to institute a promotional strategy to create awareness of such services among the research community. As Harrison & Hughes (2002, 8) put it "the simple provision of services, however good, however relevant, does not mean the target audience will embrace them". Marketing of services is a prerequisite in making sure that researchers know what the library offers.

6. Discussion

The main idea of university libraries is to support academic research, teaching and studying. Traditional research support services have been acquisition of library material, its cataloguing, subject description and making it available to users. Recently new needs of researchers and means for services have emerged. Research data, bibliometrics, open access, information literacy teaching for researchers – all these are seeking their forms. New ways of working with library users, like knotworking, have also emerged.

The significance of new research services, such as "Book an Information Specialist" or bibliometrics is beyond their apparent benefit for researchers and libraries. Research services encourage researchers and librarians to engage in closer collaboration which in turn generates confidence and perhaps more collaboration. Thus research services can increase the value of library in the eyes of scholars and university administrators. New research duties can also be a source of empowerment for librarians and information specialists who may have already worked in a library for some time.

New forms of collaboration have already increased confidence between librarians and scholars. In the future, research services can increasingly be a source of empowerment and inspiration for librarians, and a source of productivity for researchers.

This chapter provides evidence to suggest that all the three libraries recognize the unique information needs and services for researchers, and attach great importance to research support services. However, the level and types of research support services in these libraries differ, albeit not significantly. It emerged from the discussions of each case that the libraries of the universities of Tampere and Helsinki offer more advanced services for researchers than does the Library of the University of Namibia.

Research support services such as bibliometric services offered at the libraries of the universities of Helsinki and Tampere represent a new wave in information services for researchers. Other distinct information services for researchers are knotworking at Helsinki University Library and "Book an Information Specialist" service at Tampere University Library. These differences can be attributed to various contextual environments such as the research development at each of the parent university, historical backgrounds, and economic situation, level of the library–researcher relationship, and also the level of expertise within these libraries.

The University of Namibia is a relatively young university, in a developing country, and its library relies mostly on traditional in-

formation services for researchers. As the case has revealed, research support services at the University of Namibia Library have not yet been subjected to rigorous assessment. However, this study gave impetus to introduce modern research support services at the University of Namibia Library.

The future of research support services within academic and research libraries will be characterized by more collaboration between researchers and library staff. Information professionals will play a more active role by guiding researchers in modern tools of information discovery and retrieval. Moreover, open access publishing will significantly influence research support services in the sense that information professionals have the necessary competence for the management of open access repositories. Information professionals will further continue to provide researchers with assistance relating to data management, applying new software. Other factors that will impact research support services include new and emerging information technology tools.

Information specialists operate in a dynamic environment, which requires adaptation to changes in technology and other developments. Thus the changes which may occur in research support services will be shaped not only by researchers themselves but also by the wisdom of information professionals.

When we look back over the history of libraries, we can see that many libraries were founded by scholars, and often scholars have also been librarians. Now it seems that we are facing the fact that librarians who are working with research support services should have both professional education and scientific knowledge. Are we coming to a new era of librarians who are also scholars?

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