



EXPLORING NEW INFORMATION HABITATS : THE INFORMATION SPECIALIST AS GUIDE IN THE E-RESEARCH ENVIRONMENT

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ABSTRACT: A strategic focus of the Academic Information Service, University of Pretoria (AIS), is to develop and implement an effective Information Service for Research.

The university's mission statement states that it strives to be the leading research university in South Africa and the AIS would, therefore, play an important part in helping it to achieve this aim. The need to increase research output as well as obtaining an optimum postgraduate through-put rate is the foundation of this Research Strategy.

A focus group was formed in 2004 to investigate all facets of such an information service for research, consisting of the leaders of 3 service units of the AIS, covering the Humanities, Natural Sciences/Agriculture and Engineering and the Built Environment, and Veterinary Science.

Leading research universities were identified after consultation with other AIS leaders and considering information from the institutions' web pages. Their library directors were contacted for their inputs. These included the University of Alberta and University of Calgary in Canada, and Sheffield University in the UK.

Group discussions were held with Information Specialists and with a group of top researchers at the University of Pretoria to gain further insights.

It became clear that the role of the Information Specialist and the competencies needed in the Information Service for Research focus would be a central feature of this project.

Facets that were identified as being essential role players were:

- *E-information developments, including building e-resource collections and the use of metadata for optimum retrieval*
- *Scholarly communication and e-research support*
- *IT support and skills*
- *Relationships, networking, communication and facilitation of knowledge networks (COPs/Communities of Practice)*
- *Flexibility in an ever-changing information and research environment*
- *Training skills (both giving training and receiving training), not only in database searching but also in e-publishing and managing their own reference databases*

The findings of this focus group and developments based on these findings will be discussed, the implementation actions described and future plans mentioned.

Introduction

A strategic focus of the Academic Information Service, University of Pretoria (AIS) is to develop and implement an effective Information Service for Research.

The university's mission statement (1) states that it strives to be the leading research university in South Africa and the AIS would, therefore, play an important part in helping it to achieve this aim. The need to increase research output as well as obtaining an optimum postgraduate throughput rate is the foundation of this Research Strategy.

A focus group, consisting of the leaders of 3 service units of the AIS, covering the Humanities, Natural

Sciences/Agriculture and Engineering and the Built Environment, and Veterinary Science, was formed in 2004 to investigate all facets of such an information service for research.

The traditional research process has been documented in the literature (2) as consisting of the following steps:

- Planning the research
- Literature survey
- Formulating the research problem
- Formulating the research design
- Writing the research proposal
- Writing the proposal for a research grant

- Data collection
- Data analysis
- Interpretation of results
- Practical application of the results
- Communication of the results
- Participation in relevant research and knowledge networks

Throughout the above research process the Information Specialist has a supportive and essential role to play in the following areas: providing current awareness services, information literacy training, indexing of information sources, synthesizing information in web pages, consultation services to assess needs, creating profiles, undertaking specialist searching, referring to faculty research committees as necessary and to the Department of Research Support and Development, and advising on indexing software, indexing tools and indexing terms.

Their facilitation role in knowledge networks such as online Communities of Practice (COPs) has also been discussed in the literature or presented as papers at conferences in recent years (3).

In this E-Age all the above facets of the Information Specialist's role have come together and can be more easily applied or implemented than ever before.

E-Research environment

Converging streams of technology, networked information, and changing research practices are emphasizing the electronic environment in which research is taking place today.

As a recent symposium (4) held in Pretoria in May 2005 also pointed out, academic and research libraries in South Africa will have to urgently implement effective new structures to support their organisation to achieve improved participation in e-Research. The demands of the new research and scholarship practices will require our librarians to implement new, effective e-services, acquire new sets of information skills and manage scholarship in collaboration with the researchers that develop, generate and draw on it.

Cyberinfrastructure is the term now used to describe the new research environments in which advanced computational, collaborative, data acquisition and management services are available to researchers through high-performance networks. But it is also a set of supporting services made available to researchers in which the library will play an important role (5)

The Investigation

Group discussions were held with Information Specialists and with a group of top researchers at the University to gain further insights in the academic information needs of the researcher at UP. It became clear that the role of the Information Specialist and the competencies necessary to enable her/him to perform optimally would be a central feature of this project, especially within the new e-Research environment.

A literature study revealed the following facets as being essential role players:

- E-information developments including building e-resource collections and the use of metadata for optimum retrieval
- Scholarly communication and e-Research support
- IT support and skills
- Relationships, networking, communication and facilitation of knowledge networks (COPs/Communities of Practice)
- Flexibility in an ever-changing information and research environment
- Training skills (both giving training and receiving training), not only in database searching but also in e-publishing and managing their own reference databases
- Skills necessary in setting up BLOGS and Wikis both for own needs as well as those of the researcher

What others are doing

Leading research universities were identified after consultation with other AIS leaders and considering information from the institutions' web pages. Their library directors were contacted for their inputs. These included the University of Alberta and University of Calgary in Canada.

Alberta reported (6) that they have two major supports in place for researchers: 1) a strong commitment to e-resources that can be accessed from the lab/bench or that can be loaded on a PDA (Personal Digital Assistant) and 2) a Research Data Centre. Here staff expertise in working with social sciences data is provided and a secure facility for the use of national data.

Calgary (7) employs liaison librarians to support research and teaching. They are assigned to subject areas and manage collection development and provision of in-depth reference, research assistance and consultation. They also provide Information Literacy Instruction for faculty and graduate students. This includes providing Information Literacy modules into research methods courses. The newly available full-text electronic resources acquired by the university library have led to further education roles for their liaison librarians as they help faculty learn about digital collections. These include the digitisation projects of the university, such as Our Future Our Past and Our Roots; and include new opportunities for research that emerge from these resources.

Within the Health Sciences disciplines at Calgary, librarians collaborate with faculty in conducting "systematic reviews" (needed in Evidence-based medicine). Librarians also actively help to raise awareness of e-publishing opportunities. They have helped to develop an Institutional Repository to preserve and make publicly available the university's record of scholarly information.

The SARIS (South African Research Information Service) project is an important initiative in the advancement of research in South Africa (8). Its aim is “empowering the researcher via access to online resources” (online global literature and other online research facilities). It looks at the needs of all researchers, noting that some are well resourced (large institutions) while others are isolated (poorly resourced institutions and NGOs). The project team under the leadership of Roy Page-Shipp also focused on Open Access issues, the growing e-Research environment and Digital Curation.

These various inputs and developments occurring both locally and internationally were noted by our team and ensured that what we were suggesting for UP was both focused and relevant.

Role of the Information Specialist

At UP the role within the research environment will be focused on the following goals as also stated on the research webpage:

- Bringing global information to researchers/postgraduate students
- Stimulating and supporting the publication and dissemination of UP research findings
- Providing information, communication and research methodology skills training

The following processes have been identified :

- Information provision (within an e-information strategy involving open access, eScience and content management)
- E-scholarship support: e-theses, publishing e-articles, digitising for archives, digital collection storage, data storage, database management, and ethics
- Information literacy training, including effective searching techniques for the Internet and evaluating Web information, communication skills, research methodology skills and the use of database management software. Marketing of services and products is enhanced by these training opportunities.
- Consultation services: these include managing reference collections, advanced specialised searching , publishing of articles, forming and facilitating Communities of Practice (COPs) as virtual groups by using the UPportal or Blogs, webpage design, knowledge management practices, portal design and implementation, and digital learning objects collections.

New opportunities for research and the Information Specialist

Digitisation projects of universities, e-scholarship initiatives, open access issues and the formation of Institutional Repositories are giving further impetus to research in the academic or e-Research environment

- a) Digitisation projects at UP
The introduction of new courses at UP in support of the African Renaissance initiative of Pres Mbeki led to increasing demand for African-related information sources on aspects such as culture, tourism and vernacular architecture in particular. This gave rise to the Digitisation project in the section Special Collections of the AIS. Certain publications needed were out of print and unobtainable, with only one copy available in the Collection, so the project of digitising material was undertaken, following guidelines (9)
Another example of such digital collections is the Arnold Theiler collection of the Veterinary Science Library.

Such digitisation projects are specialist fields requiring the input and support of the relevant Information Specialist in consultation with the subject expert / researcher and of course, the metadata specialist to ensure optimum retrieval of the information.

- b) E-Scholarship (supporting e-publishing of articles, and e-theses). UP has implemented an e-thesis policy and all theses from 2005 onwards have to be submitted in e-format (10). The Information Specialist has an important role in this area as she has to advise and support the postgraduate (PG) student, especially in ensuring that he is satisfied that his copyright will not be infringed.
- c) Evidence-based medicine in the Health Sciences and Veterinary Science Faculties. This is an established practice in the Health Sciences but still new within veterinary science. As occurs at the University of Calgary, the Information Specialist at UP collaborates with lecturers in conducting systematic reviews of the literature to ensure that the best practices are being followed. This is a skill that the Information Specialist has to acquire. Training opportunities are needed to ensure that she can play an active role. In South Africa the Health Sciences Librarian at the University of the Witwatersrand has taken the lead in providing such training to the health science and veterinary librarians in the country.
- d) The Information Specialist is also an advocate of Open Access to promote knowledge sharing and the creation of new knowledge, but must be able to ensure the necessary protection of authors' / researchers' output when deemed essential or requested by the researcher. This is possible, by making his output secure through password protection.
- e) As at Calgary, the Information Specialist actively raises awareness of e-publishing

opportunities within her group of academics. Often due to the workload of the academic concerned, this e-publishing is not taking off as quickly as it could.

Competencies

A literature survey (11, 12), as well as our own findings identified the following competencies as being necessary for the Information Specialist to be effective in her research support role at UP

- Facilitation of learning process
- Value adding to products
- Current awareness
- Web newsletter support
- Searching techniques / skills
- Metadata skills
- Business sense
- Web product development
- Copyright knowledge
- Communication skills
- Evaluation of information
- Research tools knowledge
- E-scholarship skills
- Digitisation knowledge
- Leadership skills
- Client focus / Client Relationship Management (CRM)
- Change management skills
- Flexibility
- Mentorship skills
- Knowledge management skills
- IT literacy
- Critical thinking

Project developments

- 1) Generic web page on Information Support for Research at UP (<http://www.ais.up.ac.za/postref/>)
The first implementation of this project team was the design of a generic web page. This research support page links to all information sources such as databases available to UP users, according to their subject groups, with the minimum of clicks for rapid and easy access. It lists all relevant information needed by the researcher when embarking on postgraduate studies or a research project. Its features include success stories taken from faculty newsletters regarding specific research outputs or developments. A "What's new" section enables information specialists to undertake marketing of latest products and services.
- 2) The design and implementation of an electronic information literacy course for postgraduate students at the Faculty of Veterinary Science. This module is part of the Research Methodology course presented on WebCT by the Faculty. The Information Specialist has sole responsibility for the information literacy section, which includes testing. Students return their answers to the Information Specialist for

marking which she then submits to the course convenor. This online training course has proved to be most successful with positive feedback received from the students

- 3) To ensure optimum communication and participation in the project within a diverse and dispersed community (9 faculties each having its own SU) including 6 branch libraries, the focus group initiated a Research Listserv for its group of Information Specialists.
- 4) The design and development of the Research Roadmap at the Faculty of Health Sciences in cooperation with the library, to enable the new inexperienced researcher or postgraduate student to know which steps to take to embark on his studies or project

Training needs of Information Specialists

The following training needs in the AIS were identified to enable the Information Specialist to perform optimally:

Searching skills

- techniques / strategy
- Web (alerts, data mining, metadata)

Knowledge of Tools

- Reference Manager
- Research Toolbox

Information organisation (cataloguing, indexing, abstracting, metadata)

Teaching / facilitating

- (design of material, presentation skills)

E-publishing (e-theses, etc)

Portal customisation

Findings and implementation actions

The following steps have been implemented:

- Roll-out of the Webpage and further additions to features as it is used and feedback is received from both the Information Specialist and the researcher
- Implementation of training programs
- Linking this new research support role of the Information Specialists to their Performance Management. This is necessary to ensure participation and rewarding achievements

Future developments envisaged by the project team

The Institutional Repository for UP is being developed with critical input from a UPspace project team consisting of representatives from Service Units.

Metadata standards will be applied throughout UP for all digitised material, especially for its unique and information-rich slide collections, to ensure optimum retrieval and sharing of information / digital learning objects.

There will be an increase in cooperation and active participation of all academics and researchers in placing material in this Institutional Repository as they see that their Intellectual Property Rights are not under threat.

There will be a growth in expertise of Information Specialists enabling optimal support in the e-Research environment of their clients.

There will be a raised awareness amongst researchers of the role that their Information Specialist can play in ensuring their successful research output – not least their support role within their Community of Practice.

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References

1. University of Pretoria Mission statement (<http://www.up.ac.za/about/eng/index.html>)
2. University of Pretoria. Research introduction (<http://www.up.ac.za/research/eng/index.html>) (Accessed February 3, 2005)
3. Pienaar, H. (1994) Die kreatiewe en innoverende universiteitsbiblioteek . University of Pretoria D.Phil thesis.
4. Groenewald, H., Van der Westhuizen, E. and Van Wyk, J. (2002) Knowledge Management and the Information Specialist: dancing in step or missing a beat? 2nd SLIS/OSALL/SAOUG Conference, Midrand South Africa, 11 June 2002
5. Gaelic symposium, 9-10 May 2005 http://www.fotim.ac.za/gaelic_conferences/symposium2005/more.html (Accessed June 3, 2005)
6. Libraries and changing research practices: a report of the ARL/CNI Forum on E-Research and Cyberinfrastructure. (2004) Proceedings. October 15, 2004, Washington DC www.arl.org/forum04/ (Accessed February 3, 2005)
7. E-mail correspondence from Karen Adams, University of Alberta, Canada, 20 August 2004
8. E-mail correspondence from Darlene Warren, University of Calgary, Canada, 26 August 2004
9. Page-Shipp, R. (2004) SARIS – empowering the researcher via access to online resources. Consultative workshops. University of Pretoria, Academic Information Service.
10. Hazen, D., Horrell, J. and Merrill-Oldham, J. (1998) Selecting research collections for digitization. Council on Library and Information Resources. (<http://www.clir.org/pubs/reports/hazen/pub74.html>) (Accessed July 21, 2004)
11. University of Pretoria. Electronic theses and dissertations. <http://upetd.up.ac.za/UPeTD.htm>
12. Marshall, N., Woodson, S. and Beck, M. (1999) Developing core computer competencies for librarians. November 1999. Villa Julie College Library (<http://www.vjc.edu/library/index.aspx?id=3043>) (Accessed August 11, 2004)
13. Special Libraries Association Board of Directors.(2003) Competencies for information professionals of the 21st Century. Rev. ed., June 2003 (<http://www.sla.org/content/learn/comp2003/index.cfm>) (Accessed August 11, 2004)