Changing Roles of Health Librarians with Open Access Repositories

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Abstract:. *The aim is to explore how health library and information professionals can expand their current work roles by supporting open access initiatives particularly the development of institutional repositories. A role competency framework is presented to help analyse a case study in a cancer hospital in the UK, as well as some other examples from the literature. The findings show that librarians benefit from greater expertise gained in metadata standards, and the library service gains from closer relationships with the researchers.*

Keywords: *Open access, Health libraries, Institutional repositories.*

I. INTRODUCTION

Open access has a range of meanings, but the working definition for this paper is the provision of documents (generally research journal articles and research data) with few, or no, restrictions on readership. The aim of open access is to ensure that information reaches the readers who might benefit. Whereas for subscription journals and most books there is a charge for access, the idea behind open access is that access should be free (or nearly free) for the reader, at some stage in the publication cycle. Institutions (universities, research units) have strong motivations for advertising the research that they do, and many are developing institutional repositories to store research papers (or at least the reference details to the papers) and possibly research data, and to make that material available via the Web. This is another form of open access. There are also subject repositories, the most prominent in the biomedical area being PubMed Central – another variation on open access.

Roles of health librarians have changed over the past ten years, partly due to the demands of evidence based practice in the health sector. Roles such as clinical librarians, support of systematic reviewers, informationists, have emerged (Brettle and Urquhart, 2011) and many of these roles demand more specialist information science skills and knowledge. More importantly perhaps, many of the new roles demand competencies in working with other health professionals and IT professionals. The word role often implies a mixture of the skills (and knowledge) required to undertake the tasks associated with the role. Competency is precisely defined as 'the behaviours that employees must have, or must acquire, to input into a situation in order to achieve high levels of performance' (CIPD, 2010). The emphasis is on the person and behavior and performance.

This paper examines some of the skills, knowledge, attitudes and inter-professional working required to make open access a reality for an institutional repository in a specialist, research-intensive teaching hospital (academic centre). A role competency framework is used to help identify some of the skills and knowledge required. Comparisons with similar projects illustrate what health librarians have achieved, and could achieve, to make repositories more successful.

II. METHODS

A. Competency frameworks

The competency framework used is the Medical Library Association list of competencies (MLA, 2007). The specialist competencies are:

1 Health sciences information services: understand the principles and practices related to providing information services to meet users' needs (differentiating needs of different groups, including patients and the public, and how to design and manage services accordingly, in line with institutional information policies).

2 Health sciences resource management: have the ability to manage health information resources in a broad range of formats (covering selection, acquisition, licensing, intellectual property considerations, conservation, preservation, archiving, cataloguing, classification, national standards for collection management and trends in information formatting and dissemination).

3 Information systems and technology: understand and use technology and systems to manage all forms of information (systems analysis principles, evaluation of technologies, integration techniques, solutions for permanent access to electronic information, applications in emerging areas of biomedicine, computational biology and health information, including electronic health care systems and records, communications infrastructure such as the internet and web).

4 Curricula design and instruction: understand curricular design and instruction and have the ability to teach ways to access, organize and use information (adult learning theory, cognitive psychology, educational needs assessment, evaluations, instructional methodologies and technologies, management of education services).

5 Research, analysis and interpretation: understand scientific research methods and have the ability to

critically examine and filter research literature from many related disciplines (quantitative and qualitative methodologies, techniques, and interpretation, location and critical evaluation of research literatures, using principles of evidence based practice to support decision making, conducting research and dissemination of findings).

Of these, those listed under 1), 2) and 5) are the most relevant to the institutional repository work.

B. Case study description

The case study of institutional repository development is described in more detail in Webb (2011). Anne Webb is based at the Kostoris Library in the Christie School of Oncology. The Christie is one of seven partners in the Manchester Academic Health Science Research Centre and is also part of the Manchester Cancer Research Centre with the University of Manchester and Cancer Research UK. Each year around 350 research papers are published by Christie staff. The aim of the repository was to capture and demonstrate this output in an easily discoverable format.

The initial development of the repository involved an in-house solution. A programmer and a web developer helped to design a system based on a searchable SQL database accessed via the internet. Working with this solution helped to determine the workflows required, but it became unsustainable in terms of time and human resources. Piloting of the next development, use of the Biomed Central repository software, started in 2009. This has proved easy to integrate with existing web pages, and is easy to manage, with several features that make it attractive, such as the development of department pages.

The staff at the Kostoris Library are populating the repository with current and older archive materials, with emphasis on mediating the submission to ensure consistency in description and format (putting responsibility on authors alone might lead to inconsistencies). Before items are deposited in the Open Repository database, checks and additions are made to ensure authority control on the format of author names and journal names. Keyword metadata are also added to the records.

C. Mapping of competencies required to MLA framework

Table 1 shows how the skills and knowledge described in Webb (2011) map to the MLA competencies.

One of the key messages to emerge from the development of this repository is the emphasis placed on providing a service that suits the needs of the researchers, e.g. to help them create their own web presence and make it easier for them to link to others in their wider research community. The repository in this case study serves the needs of the authors/researchers, management (to showcase research at the Christie), and the general public wanting more information on cancer research. Last but not least, the needs of other information managers are served through proper attention to the repository standards, and in the stewardship of digital content. Assigning metadata and

ensuring consistency in the description of content is an important part of that process.

MLA competencies	Mapping to skills and knowledge for repository work
Health sciences information services: understand the principles and practices related to providing information services to meet users' needs (differentiating needs of different groups, including patients and the public, and how to design and manage services accordingly, in line with institutional information policies).	Distinguishing needs of users of the repository, including patients and the public Understanding what the researchers wanted Awareness of the demands of senior management
Health sciences resource management: have the ability to manage health information resources in a broad range of formats (covering selection, acquisition, licensing, intellectual property considerations, conservation, preservation, archiving, cataloguing, classification, national standards for collection management and trends in information formatting and dissemination)	Sourcing current papers on a monthly basis from databases, plus any recommendations of recently published articles made by staff. Checking metadata prior to submission to ensure compliance with repository standards for citation and author consistency, affiliation, appropriate keywords and inclusion of weblinks such as the article DOI (digital object identifier). Clarifying copyright/IPR. Dealing with publishers, and possible liaison with other repositories
Research, analysis and interpretation: understand scientific research methods and have the ability to critically examine and filter research literature from many related disciplines (quantitative and qualitative methodologies, techniques, and interpretation, location and critical evaluation of research literatures, using principles of evidence based practice to support decision making, conducting research and dissemination of findings).	Searching the biomedical literature to locate current and retrospective publications for inclusion. Awareness of different research publication formats (currently only peer reviewed journal articles included in repository, but this may change) Provision of reports on research across the organization. Understanding of the way scholarly communication works now in cancer research

Table 1. Competency mapping

D. Comparison with other repository developments

One of the important factors not mentioned in the Kostoris library case study is that of cost. Populating an institutional repository takes time – and money. Library staff gain in expertise, and relations may improve between the researchers and the library, but there are in-house staff and material costs to be considered.

Piorun and Palmer (2008) give details of the cost of digitizing doctoral dissertations at an American medical graduate school and claim that the cost per item was competitive with an outsourcing option. Like the Christie project, they claimed that the project brought intangible benefits in closer relationships with the researchers, as well as greater expertise in management of metadata standards and copyright, as indicated in the competency framework mapping.

Such closer relationships are desirable for libraries that aim to help researchers comply with the National Institute of Health (NIH) open access mandate, that states that peer reviewed papers by authors of research publicly funded in the USA should be made freely available via PubMed Central (a subject repository for the biomedical sciences, run by the National Library of Medicine) no later than 12 months after initial publication. A survey of academic libraries and their response to the NIH mandate (Thomas and Blackwell, 2010) found that libraries had different methods of outreach, but that direct contact with individual researchers or groups seemed to be most effective. Although the number of institutional repositories (planned or operational) had increased, the effect of the NIH mandate on institutional repository development seemed minimal.

Koopman and Kipnis (2009) discuss how the Scott Memorial Library's institutional repository evolved from being a showcase for the research done by faculty, into a way of supporting original publication as well. They stress the importance of choosing suitable repository software (Berkeley Press's Digital Commons was selected). Their project involved digitization of important historical documents as well as the population of the repository by faculty publications. Their approach to outreach was informed by work done at the University of Rochester (Foster and Gibbons, 2005) to ensure that researchers participated in the repository project. To some biomedical researchers, an institutional repository seems to be competition with PubMed Central (and the deposition work for that may be managed by the journal, not the authors). To persuade the faculty staff to submit publications to the repository, library staff showed how the number of deposits, and usage statistics for the deposits by that member of staff could be used for career advancement and promotion.

Koopman and Kipnis (2009) mentioned how the scope of the repository was expanding, and at present one area of development is that of research data repositories. MacDonald and Martinez-Uribe (2010) discuss the possibilities for research data repositories, noting that such projects should enhance inter-professional working among librarians, information and computing services, and researchers. Klyne (2010) describes the ADMIRAL project which aims to develop a research data infrastructure for research activities in a university's zoology department. The project aims to develop a submission system for datasets to the Oxford Databank, a research data repository at Oxford's Bodleian Library.

A review of current practice on institutional repository development (Russell and Day, 2010) and research user involvement covered a wide range of published literature, reports, and blogs. The literature confirms that researchers are reluctant to deposit, despite the possibility of greater esteem, and the consensus figure for the percentage of material (in all subject areas) that is self-deposited is no more than 15% (though mandates such as the NIH mandate must increase that considerably for the health sciences). The review suggests that user requirements and usability studies be conducted together and earlier – user requirements are not to be separated from technical aspects of usability. The review also covers the debate about subject-based repository versus institutional repository, and suggests that they might complement each other for some purposes. There are some indications that researchers may be less willing to share their research data than their publications, and this may affect the success of research data repositories. The ultimate aim is to embed repository work within the routine of research activity and the review mentions some projects (e.g. VIVO at Cornell) that are trying to realize this aim.

III. CONCLUSIONS

The Kostoris Library case study illustrated how work on the institutional repository enhanced the expertise of the health library staff. Their competencies increased in the technical aspects of metadata management, knowledge of copyright and intellectual property, and standards for repository management. As the discussion of the Kostoris and other literature evidence indicates, institutional repositories are unlikely to succeed without a deep awareness of what matters to the researchers whose work contributes to the repository content. The MLA list of competencies separates out the "needs analysis" of health information services users from the specific research skills, but these competencies seem to be intertwined in the Kostoris library case study, and the other studies considered. To understand the researcher, and the research users, demands an understanding of the research process, and the way scholarly communication has worked, works now, and how it might work in the future.

In the health sector, the effect of the NIH open access mandate has helped to secure open access to much of the peer reviewed journal literature in the biomedical sciences through the PubMed Central subject repository. However, institutional repositories still play a different and complementary role, and many health librarians probably need to consider how to work with researchers and computer scientists on the development of research data repositories, that are likely to be developed on an institutional repository model. There are opportunities for health library staff to work with other disciplines, to enhance their existing information management competencies and promote their services at the same time.

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