

Emerging roles and collaborations in research support for academic health librarians

Karasmanis, Sharon & Murphy, Fiona
Learning & Research Services
La Trobe University Library
Melbourne, Victoria

Abstract

Transforming liaison roles for academic librarians is critical, as universities are moving to position themselves to meet the demands of a more competitive national research environment. In response to the new research agenda at La Trobe University, librarians have been repackaging and enhancing research services to integrate them more efficiently into the researcher's life cycle to provide a seamless and improved service. Building on a solid base of successful faculty liaison and transformation of roles in teaching and learning, librarians conducted an intensive investigation into all aspects of expert searching for systematic reviews and research metrics, to create the foundations for the enhanced services. A thorough review of the literature was conducted to examine current developments and emerging roles as they relate to academic and health libraries. Two services in particular are discussed in this paper, the new Customised Search Service, and the Research Impact Service, both of which are marketed to researchers as services to assist with grant proposals and funded projects. Another important characteristic which has impacted on service provision has been the interdisciplinary nature of the University's research agenda. Faculty librarians are required to work across all disciplines in collaboration with researchers in the Faculties, and with multiple rounds of funding allocated, the Customised Search Service has been heavily utilised. The development of these enhanced services was not without its challenges, and the impact of these are discussed, particularly library services that have been reduced or realigned to provide capacity for evolving roles and services. This paper will review the role health sciences' librarians have played in responding to this new agenda, by aligning redeveloping, and evaluating research services to meet this emerging need.

Introduction

Academic librarians work in a constantly changing environment. Advances in information and communication technologies provide greater opportunities for more efficient access to information in a variety of formats. Library users can access information anywhere and anytime. These advances also provide changes and opportunities to the roles of the academic health librarian. As well as technological advances, academic librarians increasingly need to demonstrate and justify their worth as they cope with budgetary constraints, staffing cuts, the shifting priorities of universities and governments, and a more competitive research environment. This case study will review how the health sciences' librarians at La Trobe University (the 'University') have responded to the changing needs of their users and redeveloped services to be more closely aligned with the University's research agenda.

Literature Review

In response to the demands of this ever changing environment, academic librarians are transforming their thinking and consideration of their roles. One of the

preoccupations of librarians, as noted by Cox & Corral (2013, p. 1526), “is the profession’s own status and future, yet it is hard to grasp the overall pattern of change”. The literature cites many examples of new and emerging roles that have been identified, including both functional and liaison models (Allee et al., 2014; Cox & Corral, 2013; Federer, 2013; Kenney, 2014; Lynn, FitzSimmons, & Robinson, 2011). From their research, Jaguszewski & Williams (2013, p. 7) describe the functional specialist as librarians “who do not have liaison assignments to specific academic departments but instead serve as “superliaisons” to other librarians and to the entire campus”. Some examples of current specialist areas include data management, distributed education or e-learning, instructional design and bioinformatics. As well as searching the literature, Cooper & Crum (2013) also examined the job announcements published in the Medical Library Association email discussion list archives from 2008-2012 .

One of the broader themes in the literature examines the major changes in the way librarians serve the needs of their users and institutions, and the importance of aligning their services to the strategic direction of their organisation (Allee et al., 2014; Blumenthal, 2014; Covert-Vail & Collard, 2012; Kenney, 2014; Lewis et al., 2011; Lynn et al., 2011; Whately, 2009). According to Allee, et al., (2014, p. 2), libraries need to be “better positioned and more congruously aligned with institutional priorities”. Whilst it is important for librarians to appear relevant and demonstrate their worth, the current liaison roles appear to be inadequate to meet the demands of a 21st century library (Allee et al., 2014; Kenney, 2014). Furthermore, “no one liaison can do it all” (Kenney, 2014, p. 5), and researchers are often unaware of the scope of services that librarians can offer (Jaguszewski & Williams, 2013; Kroll & Forsman, 2010; Vaughan et al., 2013). Shrinking budgets in organisations, particularly since the global financial crisis, have severely impacted libraries’ capacity to implement change and to meet the strategic goals of their organisation (Covert-Vail & Collard, 2012; Cox & Corral, 2013; Jaguszewski & Williams, 2013; Kenney, 2014; Martin, 2013; Nicholas, Rowlands, Jubb, & Jamali, 2010). Whilst libraries are grappling with these challenges and consequent issues, there is a real conundrum emerging between the traditional liaison role where productive relationships are cultivated over many years; and librarians who transform to the functional specialist model, where high level expertise is required (Federer, 2013; Jaguszewski & Williams, 2013).

Crum & Cooper (2013) report on the importance of emerging connectedness, with an increase in collaborations and relationship building. Collaboration and partnerships are important at all levels with responsibilities clearly outlined (Covert-Vail & Collard, 2012; Federer, 2013; Jaguszewski & Williams, 2013). Allee et al., (2014) note that librarians need to redefine collaborations and partnerships, and not see their working relationships as “support” roles. The literature identifies some of these new and emerging roles such as: informationist, clinical informationist, disaster information specialist, continuing medical education librarian, systematic review librarian, data management librarian, grants development librarian, emerging technologies librarian, information literacy educators and repository managers. Some of the trends in these emerging roles include: researcher collaboration and profiling tools, bioinformatics, data curation and management, social media profile management, and advice on authorship issues (Allee et al., 2014; Cooper & Crum, 2013; Cox & Corral, 2013).

With these emerging roles and the push for librarians to understand and support the process of scholarship, librarians need capacity to move away from the “holy trinity of reference, instruction and collection development” (Williams, 2009), to a more modified model. Similarly, other authors promote the move from collection building and reference desk activities to a more “engagement-centered model” (Allee et al., 2014; Jaguszewski & Williams, 2013; Williams, 2009). Whilst users have traditionally

used the reference desk in their information seeking, the way information is now distributed has changed enormously, and librarian's roles as intermediaries have been reduced (Cooper & Crum, 2013). The advent of discovery layers, point of care tools, e-learning tools, Google Scholar and online guides, has provided users with continual and mobile access to information. The emergence of approval plans and patron driven acquisition has had a major impact on collection development by significantly reducing the amount of time spent on this activity by academic librarians. Whereas collection development and reference activities have been marginalised in the academic librarians' workflow, instruction has become critical and significant in the way it is conducted. Information literacy is now a major focus for academic librarians, many of whom have collaborated with faculty and worked towards a more embedded model, and constructively aligned information literacy learning activities with subject learning outcomes (Corrall, 2008; Dearden et al., 2005; Lindstrom & Shonrock, 2006; Salisbury, Corbin, & Peseta, 2013; Salisbury et al., 2012). Whilst instruction is delivered online via sophisticated e-learning content; reference consultations, face to face tutorials, and online liaison consultations have all become paramount in the academic librarians' toolkit.

With the redefining and transformation of academic librarian roles, a number of challenges have been identified. These include organisational change, evolving technologies, education, training and acquiring an up-to-date knowledge base, and appropriate staffing. Crum & Cooper (2013), note that lack of time is a major problem, as is the lack of necessary educational background, knowledge and skills. The impact of the economic downturn has also reduced staffing budgets (Nicholas et al., 2010), putting further pressure on academic librarians trying to immerse themselves into new or repurposed roles. Also discussed is the need for appropriate capabilities in new roles, and whether librarians feel comfortable and competent in emerging roles (Cox & Corrall, 2013; Crum & Cooper, 2013; Kenney, 2014; Kroll & Forsman, 2010; Williams, 2009). Finally, building and sustaining a flexible workforce for the future, with high performing academic librarians attuned to the ebb and flow of a university's teaching, learning and research cycles will be paramount to success (Jaguszewski & Williams, 2013).

Overview of La Trobe University

The University's main campus is located in Bundoora, on the northern fringes of Melbourne, Victoria. Regional campuses are located in Bendigo, Albury-Wodonga, Shepparton and Mildura and there are two campuses located in the City centre. The University has five faculties: Health Sciences; Business Economics & Law; Science Technology & Engineering; Education; and Humanities & Social Sciences. The student population at the end of April 2014 was 32,472, of which 9,665 are health sciences' students. Teaching and research staff number 1,181 of which 360 are health sciences' staff. The Faculty of Health Sciences (the 'Faculty') currently comprises four schools: Allied Health, Public Health & Human Biosciences, Nursing & Midwifery and the La Trobe Rural Health School. These schools include 27 departments covering a broad range of disciplines offering both undergraduate and postgraduate studies across various campuses. The Faculty also has seven research programs being Lower Extremity & Gait Studies; Building Healthy Communities; Food for Life, Health & Performance; Healthy Motherhood; Living with Disability; Physical Activity & Rehabilitation; and Sex Health & Society.

According to the 2012 Excellence in Research for Australia (ERA), the Faculty's research is ranked '5' which is well above world standard in the areas of Human Movement and Sports Science; Nursing; and Other Health (which includes the

Australian Research Centre in Sex Health & Society). Social Work also features strongly in the ERA rankings¹.

In 2013 the University embarked on a new research agenda under the umbrella of the Future Ready: Strategic Plan 2013 to 2017². The key objectives of which are to improve research quality impact and volume; increase cross-disciplinary research collaborations, and identify, develop and implement strategically important research partnerships. The University also aims to improve its international research-based institutional ranking and double the total research income. To achieve these aims five interdisciplinary Research Focus Areas (RFAs) were created, three of which are aligned with health: Building Healthy Communities; Sport, Exercise and Rehabilitation; and Understanding Disease. Seven Disciplinary Research Programs were also identified. To support these research initiatives, health sciences' librarians³, in collaboration with other faculty librarians and stakeholders, developed a suite of new services which represent the emerging roles for faculty librarians at the University Library.

Emerging Roles and Services for Health Sciences' Librarians

Teaching and learning reforms in 2009 enabled health sciences' librarians to realign instructional design and embed information literacy activities into the curriculum (Corbin & Karasmanis, 2010). This collaborative experience and successful relationship with Faculty provided the foundation to open up new conversations about library research services. Teaching and research staff at the University have always benefited from a robust and effective service from faculty librarians who have worked closely to meet current and emerging needs. The University's new research agenda⁴ was the catalyst for enhancing library research services. There was significant enthusiasm created around the introduction of the interdisciplinary RFAs, and encouragement to all areas of the University to collaborate and become involved. In the early stages, at scoping workshops, faculty librarians were in attendance promoting library research services. At a senior management level, the Library's response was very intense with the University Librarian in consultation with major stakeholders of the research programs. In addition, a key aspect of the 2013 Library Business Plan was a repackaging of library research services around three complementary roles: expert searching, training and research consultations.

Customised Search Service

Expert searching as one of the key emerging roles provided a focus on the way health sciences' librarians assisted researchers with their systematic literature and systematic review searching. In collaboration with one of the senior researchers at the University, a trial was designed to explore the feasibility of providing an advanced Customised Search Service (CSS) to support literature reviews for grant proposals and funded projects. LibReST (Library Research Support Trial) was particularly focussed on performing systematic literature reviews on behalf of academic researchers using the STARLITE⁵ standards reporting framework (Booth, 2006), to explore the most efficient method of reporting literature searches. A detailed log was kept throughout the trial to track issues and inform developments.

¹ www.arc.gov.au/era/outcomes_2012/Institution/LTU

² <http://www.latrobe.edu.au/about/downloads/Future-Ready-Strategic-Plan-2013-2017.pdf>

³ Health Sciences team consists of four faculty librarians at the Melbourne campus.

⁴ www.latrobe.edu.au/about/vision/research

⁵ STARLITE (sampling strategy, type of study, approaches, range of years, limits, inclusion and exclusions, terms used, electronic sources)

The trial included the following two cases, both involved updating systematic reviews: *'Identify all relevant peer-reviewed articles on palliative care initiatives involving General Practitioners published in last 10 years'*, and *'Identify all relevant peer-reviewed articles on the use of tele-presence in palliative care published in the last 10 years'*. Searching was carried out in all databases identified in the systematic reviews to ensure accuracy in search results. Accounts were set up in the OVID and EBSCO databases to save the search histories, and all search results were exported into EndNote, and emailed to the researcher. A checklist was also created to ensure consistency and collaboration in workflow such as: database naming conventions, EndNote process, search strategy, search history and recording of statistics. The following issues were identified as being important to the process: initial consultation to establish time frames and clarify expectations; clear documentation; use of the STARLITE or other templates to note changes or variations; ongoing communication during the search process to maintain accuracy and efficiency; and expectations on grey literature and hand searching. A request form was developed, and is available on the Library web site⁶.

Feedback from the researcher noted the following:

- search results from both cases were summarised and presented to a group of primary care health professionals
- at least two journal publications will be published from the reviews
- helpful and productive to have the results in EndNote
- consider the inclusion of Faculty researchers engaged in tenders and commercial contracts
- consider the level and costing for a paid service option

Recommendations following the trial and researcher feedback:

- introduce the service to assist with grant proposals and funded projects
- promote the service through the Library and University's regular communication channels
- CSS to go live as a pilot for the remainder of 2012
- investigate the nature and categories of support provided based on Faculty requirements for a standard (available as part of faculty librarians' core duties), and premium service (available as part of user pays model)
- evaluate the service to ensure ongoing sustainability

The trial covered all elements outlined in the original scope for health sciences, such as testing the search service, conducting an environmental scan, and development of an online request form, which informed the development of a similar service for other faculties and regional campus libraries. The trial also identified a shift in service provision by health sciences' librarians from a teaching role in literature searching, to a more systematic searching role to complement the traditional library research services and excellence in practice. This has opened up fresh initiatives and opportunities for closer integration and liaison, and has provided an excellent search service for researchers. Following on from the trial, the service was promoted to the Faculty of Health Sciences and from 2013 the service was extended to all faculties in the University.

⁶ www.latrobe.edu.au/library/research-and-grant-support/customised-search-service/hs

The table below outlines the use of the service. Usage by health sciences' researchers far outweighs that for all other faculties combined. With an average search taking more than eight hours, a real shift in focus has been essential within the health team to manage this workload to ensure all requests are conducted within the researchers' timeframe.

Table 1: Customised Search Service by Faculty [2013]

Faculty	Number of searches	Number of hours spent
Business, Economics and Law	6	50
Health Sciences	52	425
Humanities, Social Sciences and Education	6	88
Science, Technology and Engineering	4	35
Interdisciplinary: Health Sciences/Business Economics and Law	1	53

Analysis of the health sciences requests show 15 requests were for systematic reviews, the balance were literature reviews, and all supported either application for a grant proposal or a funded project. From October 2013, 16 requests were identified as being related to the 'Building Healthy Communities' RFA, and five from 'Sport, Exercise & Rehabilitation' RFA.

One of these requests involved a large and very complex interdisciplinary project involving business and health researchers as part of 'Building Healthy Communities'. Faculty librarians from both disciplines met with researchers to discuss their needs which involved four separate searches. As business researchers were not familiar with systematic search techniques, the translation of the search strategies and an understanding and interpretation of the search process was required. Whilst the searching was complex, the search strategies and process were different between the teams. This highlighted some of the challenges that can occur with interdisciplinary research (Covert-Vail & Collard, 2012; Slatin, Galizzi, Melillo, & Mawn, 2004).

A project is underway to evaluate the service. This incorporated an online survey to researchers, and will collect qualitative feedback from faculty librarians who have conducted the searches. Ethics approval was obtained and the survey was conducted using Qualtrics during January and February 2014. There was limited response to the survey (n=15) and response rates were not consistent by ratio with the number of requestors by discipline area. In health sciences, only six responses were received from a possible 52 requestors, whilst in Business Economics and Law, four responses were received from a possible six requestors. A further limitation of the survey was the lack of an interdisciplinary request field, as this search was performed after the survey was created. Due to these limitations, it was difficult to make connections between the anticipated values of the search service to successful

outcomes for researchers. However, the qualitative data provided useful feedback to incorporate into our evaluation.

There were a variety of responses on the way researchers discovered the service, such as an online library newsletter; word of mouth; induction day; library emails; and from the faculty librarian. The personal approach by colleagues and librarians was the highest (n=9), and it was revealing that not one responder found the service from the Library web site, although *Research and Grant Support* is in a very prominent place on the Library home page. Responders were also asked how the service added value. Responses included: the value of the search strategy and design; additional references were discovered that were unknown to the researchers; increased the speed and saved time. Feedback included, *"It was a very comprehensive, systematic search"* and *"it gave the research group confidence that the search was extensive and comprehensive"* and *'exceeded expectations'*. Two responders provided suggestions for improvement: *"Better promotion of the service"* and *"regular sessions to update researchers on effective/new researching skills"*.

Research Impact Service

A second emerging role critical to the University's research agenda, is the renewed focus on research metrics (or 'bibliometrics'). Research is a strategic priority for many universities, and the needs of researchers are becoming more and more important (Brewerton, 2012). Academic libraries are increasingly required to demonstrate their value, relevancy and visibility to both their users and the parent organisation. One way this is being achieved is by offering customised services to researchers in areas such as research metrics (Auckland, 2012; Borchert & Young, 2010; Corral, Kennan, & Afzal, 2013). Whilst academic libraries have been involved in this area for a number of years, it has "gained renewed momentum" due to a number of factors such as new online tools and measures to evaluate research, and a more competitive research environment (Corral et al., 2013, p. 666). Research metrics such as citation analysis and journal metrics are quantitative measures used to measure the impact or influence of academic research. They can be used by researchers to support funding or grant applications, applications for academic promotion, performance evaluation, benchmarking, identification of potential collaborators and emerging areas of research, as well as evaluation of the impact and quality of a journal.

Prior to responding to the rising importance of research metrics, the Library's knowledge and services in this area were fragmented, not cohesive, and depended on the need of the particular Faculty at the time. To increase knowledge and awareness, faculty librarians attended information sessions conducted by the University of Melbourne, the University of New South Wales, and a workshop was conducted by an external trainer. To further develop knowledge and expertise, and to prepare for the Research Impact Service (RIS), Faculty Librarians attended an intensive five day course developed by the Queensland University of Technology ('Research Support for Academic Librarians') in early 2014. In consultation with one of the University's top health researchers, a presentation was conducted to outline future library support requirements from an academic perspective. In response to this critical need, health sciences' librarians created accessible online guides which led to the implementation of a more cohesive and tailored service. Initially, two LibGuides were created: 'Citation analysis: Measure your research impact'⁷ and

⁷ <http://latrobe.libguides.com/citationanalysis>

'Where to publish: Journal impact and quality'⁸. The process of creating these LibGuides was an excellent way to become familiar with current developments, tools and metrics as it involved conducting extensive research on content and layout. For both of these guides, an environmental scan was conducted to review and examine online content from academic libraries (including LibGuides), view instructional videos and fact sheets from various vendors, and reading widely on the subject, whilst continually building knowledge in this field. The purpose of these guides was to provide easily accessible instruction for researchers and for use as a foundation for research training sessions. Slideshare⁹ software was used to contain and collapse content for easier dissemination of information and to ensure the LibGuides appeared uncluttered. Slideshare is "one of the Top 5 social media platforms for research development" (Miah, 2013), and is a quick and easy way to share and embed presentations into webpages and social media platforms.

Table 2: Slideshare views (embedded) within the Research Support LibGuides since May 2013

Title	Views
Citation Analysis	2,669
Where to publish	2,378
Publish or Perish	1,627
Google Scholar Citations	1,074
Incites	694

On completion, workshops were held for library and academic research staff to launch the LibGuides and demonstrate the various impact tools available to them for analysis of research output. The LibGuides were promoted via various communication channels within the University, and faculty librarian email distribution lists. As part of International Open Access Week in 2013, the Library Research Forum was arranged where a panel of senior academic researchers took part in discussions related to the topic "From Tweetations to Citations: Can Social Media and Open Access Enhance Traditional Publishing?" Again the aforementioned senior researcher provided critical perspective prior to the forum on the most pressing issues facing researchers at the current time. The forum program was based around these critical focus areas, with the keynote speaker and panel preparing valuable contributions for the discussion, to feed into the Library's research services agenda. The generous participation of the University senior researchers as partners in this discussion is also evidence of applied and conscientious liaison efforts undertaken by the health sciences' librarians who also coordinated presentations on Citation Analysis, Research Impact, Predatory Publishing and Green versus Gold Open Access, all of which can be accessed via the Library's website¹⁰.

⁸ <http://latrobe.libguides.com/journalimpact>

⁹ www.slideshare.net

¹⁰ <http://latrobe.libguides.com/tweetationstocitations>

Table 3: Slideshare views since October 2013

Title	Views
Predatory publishing	1,143
Data Citation Data Management	889
Tweetations to Citations	1,596
Green v Gold	3,999

The investigation and creation of online support tools provided the foundation for value adding via the RIS. After conducting an environmental scan and visiting libraries where similar services are offered, the framework was developed to create a new service. This included support for grant proposals, funding applications or academic promotion; selecting of a journal to publish in; and/or analysing a journal's impact. The service also provides advice on researcher profiling tools (e.g. ORCID, Researcher ID, Scopus Author ID), and social media tools for promoting research online (e.g. Google Scholar, ResearchGate, Microsoft Academic Search, Academia.edu). Requests for this service can be submitted online¹¹. Researchers receive one or all of the following analysis reports: article impact, journal impact and/or author impact.

A group of faculty librarians across all disciplines and campuses are delivering the service and building expertise in providing these reports. A detailed manual containing step-by-step instructions, templates and a checklist is available for other librarians wanting to complete a report. Since the implementation of the service in late 2013, the Library has received 33 requests with the majority from sciences and health sciences. The time factor is significant in that it can take one to two days to complete a report, (sometimes more) and all reports are internally peer reviewed. Evaluation of this service is planned for later in 2014, the scope and design of which is yet to be determined.

Whilst this is outside the scope of this paper, it is worth noting two other library research services. Since mid-2013, one librarian works a day per week on research data management - another emerging role. A second librarian works the same day on a rotating eight week cycle, to build expertise and translate knowledge to other librarians in the wider team of Learning & Research Services. The Market Intelligence Service has been developed around the role of expert searching, and provides information on specific industries and markets to use in business plans, proposals to industry bodies and/or companies. Faculty librarians work with RFA Development Managers, and Innovation and Commercial Development staff within the University to produce the required reports.

¹¹ <http://latrobe.edu.au/library/research-and-grant-support/research-impact/ria-service>

Challenges

The investigation and implementation of research services has not been without its challenges, the most significant being the time factor. Whilst the literature identifies the move from a tripartite to a more functional model as being critical to the effective transition of services; the experience at the University has been more gradual. Enhanced research services have been developed by faculty librarians, without structural change, which would have enabled implementation in a more measured way.

To manage these value-added services, there has been time relief in the form of reduced hours spent on the Research Help Desk. Faculty teams identified when they had multiple Customised Search requests in order to access adequate backup support. The Research Impact Service was managed across the five campus libraries; therefore a team of librarians has been able to effectively deliver this service. New initiatives in purchasing, such as patron driven acquisition and implementation of approval plans have considerably reduced the amount of time spent on collection building. Consequently, there has been a gradual but concerted shift in focus to meet these emerging needs. The importance of having a cohesive and expert team in health sciences or other disciplines cannot be underestimated in this new environment.

Conclusion

Whilst the literature on emerging roles focuses on the functional specialist versus the liaison role, at La Trobe University, faculty librarians have combined these roles to respond to the new research agenda, to provide a level of appropriate support in this new environment. A continuum of trial and implementation, has led to the development of a suite of new services. As a consequence, these value-added services have become more aligned within the researcher's workflow, and enabled development of more sophisticated expertise within the health team. Health sciences' librarians have risen to the challenge under the intense pressure and expectations from the Faculty, and have developed closer relationships, resulting in more personal or 'word of mouth' recommendations and referrals.

What were the new or revised roles that emerged to support these services? There has been an increase in the complexity of literature searching and research impact requests, some with short turnaround times. Health sciences' librarians have developed more strategic time management practices, developed more sophisticated searching skills, and worked more closely as a team to ensure requests are delivered on time.

The University's Future Ready Strategy¹² will see the restructure of five faculties into two colleges later this year: the College of Arts, Social Sciences and Commerce, and the College of Science, Health and Engineering. This will be a major change for staff, and will impact on the way teaching and learning will be conducted, with a further emphasis on online and blended learning. The impact to research activity will be more defined and targeted to existing research strengths, with a firm focus on interdisciplinary research.

¹² www.latrobe.edu.au/about/vision

This significant restructure of the University is typical of the environment of change that is documented in the literature, and affects librarians in all organisations. Roles will continue to change and adapt to align with the goals and aspirations of the parent organisation; librarians must be flexible and ready to adapt as required. At La Trobe University, a high quality and expert research service is firmly on the Library's agenda in order to provide maximum alignment and service to researchers.

References

- Allee, N. J., Blumenthal, J., Jordan, K., Lalla, N., Lauseng, D., Rana, G., . . . Song, J. (2014). One Institution's Experience in Transforming the Health Sciences Library of the Future. *Medical Reference Services Quarterly*, 33(1), 1-16. doi:10.1080/02763869.2014.866444
- Auckland, M. (2012). *Re-skilling for research: an investigation into the role and skills of subject and liaison librarians required to effectively support the evolving information needs of researchers*. Retrieved from <http://www.rluk.ac.uk/wp-content/uploads/2014/02/RLUK-Re-skilling.pdf>
- Blumenthal, J. (2014). Creating the future. *Journal of the Medical Library Association*, 102, 2-4. doi:10.3163/1536-5050.102.1.002
- Booth, A. (2006). "Brimful of STARLITE": toward standards for reporting literature searches. *Journal of the Medical Library Association : JMLA*, 94(4), 421-429. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1629442/>
- Borchert, M., & Young, J. (2010). *Coordinated research support services at Queensland University of Technology, Australia*. Proceedings of the International Association of Scientific and Technological University Libraries, 31st Annual Conference, Purdue University, West Lafayette, Indiana. Retrieved from <http://docs.lib.purdue.edu/iatul2010/conf/day2/4/>
- Brewerton, A. (2012). Re-skilling for research: Investigating the needs of researchers and how library staff can best support them. *New Review of Academic Librarianship*, 18(1), 96-110. doi:10.1080/13614533.2012.665718
- Cooper, I. D., & Crum, J. (2013). New activities and changing roles of health sciences librarians: a systematic review, 1990-2012. *Journal of the Medical Library Association*, 101(4), 268-277. doi:10.3163/1536-5050.101.4.008
- Corbin, J., & Karasmanis, S. (2010). *Evidence into practice: Evaluation of an innovative information literacy model for first year Health Sciences students*. Paper presented at the 13th Pacific Rim First Year in Higher Education Conference, 'Aspiration, Access, Achievement', Adelaide, Australia. Retrieved from http://www.fyhe.com.au/past_papers/papers10/content/pdf/2A.pdf
- Corrall, S. (2008). Information literacy strategy development in higher education: An exploratory study. *International Journal of Information Management*, 28(1), 26-37. doi:10.1016/j.ijinfomgt.2007.07.002
- Corrall, S., Kennan, M. A., & Afzal, W. (2013). Bibliometrics and Research Data Management Services: Emerging Trends in Library Support for Research. *Library Trends*, 61(3), 636-674. doi:10.2218/ijdc.v6i2.199.
- Covert-Vail, L., & Collard, S. (2012). *New roles for new times: Research library services for graduate students*. Retrieved from <http://www.arl.org/storage/documents/publications/nrnt-grad-roles-20dec12.pdf>
- Cox, A. M., & Corrall, S. (2013). Evolving academic library specialties. *Journal of the American Society for Information Science & Technology*, 64(8), 1526-1542. doi:10.1002/asi.22847
- Crum, J., & Cooper, I. D. (2013). Emerging roles for biomedical librarians: a survey of current practice, challenges, and changes. *Journal of the Medical Library Association*, 101(4), 278-286. doi:10.3163/1536-5050.101.4.009

- Dearden, R., Dermoudy, J., Evans, C., Barmuta, L., Jones, S., Magierowski, R., . . . Waters, D. (2005). Aligning Information Literacy with the Faculty Teaching and Learning Agenda. *Australian Academic & Research Libraries*, 36(4), 138. doi:10.1080/00048623.2005.10755306
- Federer, L. (2013). The librarian as research informationist: a case study. *Journal of the Medical Library Association*, 101(4), 298-302. doi:10.3163/1536-5050.101.4.011
- Jaguszewski, J. M., & Williams, K. (2013). *New roles for new times: Transforming liaison roles in research libraries*. Retrieved from <http://www.arl.org/storage/documents/publications/NRNT-Liaison-Roles-final.pdf>
- Kenney, A. R. (2014). *Leveraging the Liaison Model. From defining 21st century research libraries to implementing 21st century research universities*. Retrieved from http://www.sr.ithaka.org/sites/default/files/files/SR_BriefingPaper_Kenney_20140322.pdf
- Kroll, S., & Forsman, R. (2010). *A slice of research life information support for research in the United States*. Retrieved from <http://www.oclc.org/research/publications/library/2010/2010-15.pdf>
- Lewis, S., Hallam, G., Ritchie, A., Clark, C., Hamill, C., Kammermann, M., & O'Connor, P. (2011). Employers' perspectives on future roles and skills requirements for Australian health librarians. *Evidence Based Library and Information Practice*, 6(4), 57-71. Retrieved from <http://ejournals.library.ualberta.ca/index.php/EBLIP/article/view/10340>
- Lindstrom, J., & Shonrock, D. D. (2006). Faculty-librarian collaboration to achieve integration of information literacy. *Reference and User Services Quarterly*, 46(1), 18-23. doi:10.5860/rusq.46n1.18
- Lynn, V. A., FitzSimmons, M., & Robinson, C. K. (2011). Special report: symposium on transformational change in health sciences libraries: space, collections, and roles. *Journal of the Medical Library Association: JMLA*, 99(1), 82. doi:10.3163/1536-5050.99.1.014
- Martin, E. (2013). Shaping opportunities for the new health sciences librarian. *Journal of the Medical Library Association*, 101(4), 252-253. doi:10.3163/1536-5050.101.4.004
- Miah, A. (2013). Top 5 social media platforms for research development. *LSE Impact of Social Sciences blog*. Retrieved 01 Oct 2014, from <http://blogs.lse.ac.uk/impactofsocialsciences/2013/07/26/a-to-z-of-social-media-for-academia/>
- Nicholas, D., Rowlands, I., Jubb, M., & Jamali, H. R. (2010). The impact of the economic downturn on libraries: With special reference to university libraries. *The Journal of Academic Librarianship*, 36(5), 376-382. doi:10.1016/j.acalib.2010.06.001
- Salisbury, F., Corbin, J., & Peseta, T. (2013). *From cornerstone to capstone : information literacy collaboration across the curriculum*. Proceedings of the International Association of Scientific and Technological University Libraries, 34th Annual Conference, Capetown, South Africa. Retrieved from <http://docs.lib.purdue.edu/iatul/2013/papers/20/>
- Salisbury, F., Peseta, T., Karasmanis, S., Robertson, T. A., Corbin, J., & Hulett, H. (2012). Transforming information literacy conversations to enhance student learning : new curriculum dialogues. *Journal of University Teaching & Learning Practice*, 9(3). Retrieved from <http://ro.uow.edu.au/jutlp/vol9/iss3/4>
- Slatin, C., Galizzi, M., Melillo, K. D., & Mawn, B. (2004). Conducting interdisciplinary research to promote healthy and safe employment in health care: promises

- and pitfalls. *Public health reports (Washington, D.C. : 1974)*, 119(1), 60-72. doi:10.1016/j.phr.2004.03.012
- Vaughan, K. T. L., Hayes, B. E., Lerner, R. C., McElfresh, K. R., Pavlech, L., Romito, D., . . . Morris, E. N. (2013). Development of the research lifecycle model for library services. *Journal of the Medical Library Association : JMLA*, 101(4), 310-314. doi:10.3163/1536-5050.101.4.013
- Whately, K. M. (2009). New roles of liaison librarians: A liaison's perspective. *Research Library Issues: A bimonthly report from ARL, CNI, and SPARC*, 265, 29 - 32. Retrieved from <http://publications.arl.org/rli265/30>
- Williams, K. (2009). A framework for articulating new library roles. *Research Library Issues: A bimonthly report from ARL, CNI, and SPARC*, 265, 3 - 8. Retrieved from <http://publications.arl.org/rli265/4>