

Subject Liaison Versus Functional Library Service Models in Academic Libraries: A Narrative Review

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Abstract:

Objective: The primary objective of this article is to determine what is the available evidence in the library and information science literature on subject liaison library service model and the functional library service model in academic libraries in Australia, Canada, United Kingdom and United States of America.

Methods: This article uses a narrative review methodology to examine the qualitative themes of both the subject liaison and the functional library service model in academic libraries in Australia, Canada, United Kingdom, and the United States of America from 2009-2024. Library and Information Science databases were searched using a “keyword search strategy” and the results were screened using inclusion and exclusion criteria. The themes were determined from the data extraction process for included research studies.

Results: As reported using the PRISMA flowchart (figure 1), there were 141 records that were screened. After exclusion criteria were applied, 43 reports were assessed for eligibility to be included in this review. It was determined that 29 studies were included in this narrative review on subject liaison and functional academic library service models. The main themes identified in the literature were: academic libraries strategic alignment with affiliated institutions of higher education, restructuring of the academic library, team-based library services model (subject and functional librarian teams), relationship management, embedded librarianship, and new roles of liaison librarians.

Conclusion: Academic libraries have increased pressure to better align with the strategic goals of the institution of higher education to which such libraries are affiliated. This alignment pressure often results in reorganization of academic libraries from a subject based library service model to a functional based library service model. The literature suggests that a highly effective service model is the blending of best practices from both the subject based library service model and the functional based library service model (hybrid model). This involves building teams comprising both subject liaison librarians and functional specialists. There obviously are advantages and disadvantages of both models and the most effective service delivery may depend on the individual academic library.

Introduction:

Library services model and organization of academic libraries have often been a topic of interest in the library and information science literature. In the library and information science literature, the subject liaison versus functional roles of academic

librarians has long been a topic of debate. This narrative review discusses some of the benefits and drawbacks of both library service models discussed in the literature. Corral (2014) states that the library services model used by most academic libraries in the past was to organize technical services such as acquisitions, cataloguing and circulation using a functional model and public services such as reference and instruction using a subject liaison library service model.

Background:

Traditionally, liaison or subject librarians in academic libraries were engaged in collection management, information literacy teaching and reference to subject areas, departments, faculties, or schools (Hoodless & Pinfield, 2018; Banfield & Petropoulos, 2017). A historical literature review reveals that liaison librarians roles have remained consistent and include collection development, reference, instruction, and liaison (Wilson, 2025).

There have been some recent developments that have challenged the traditional liaison role such as changes in the external and information landscape, a shift from collections to users, the need to align teaching and research support to the strategic goals of the affiliated institution of higher education, increase focus on research and scholarly communication, improving student experience with academic libraries, and a perception that the subject liaison model is not sustainable (Ashcroft et al., 2020). It has been noticed that academic libraries that have reorganized to a functional library service model, still use a liaison model (Johnson, 2018; Wilson et al., 2024). According to a qualitative case study at Brigham Young University, the key role of liaison librarians is to connect people with library resources (Wilson et al., 2024).

Due to the changing nature of scholars and students information needs the traditional subject liaison librarian role will have to change to align with strategic goals of educational institutions. The modern subject liaison librarian is an information professional that understand how scholars communicate and use information in a particular subject area and can consult on digital publishing, institutional repositories, and research data management. Liaison librarians cannot be experts in all areas of librarianship and thus functional expertise in areas such as research data management is also needed in academic libraries (Jaguszewski & Williams, 2013)

In the last ten years there has been an increase in academic libraries restructuring and moving from a subject liaison model to a functional library service model (Andrade & Zaghloul, 2010; Banfield & Petropoulos, 2017). Therefore, this article searches and reviews the literature on subject based liaison library service model versus functional library service.

Objectives:

The primary objective of this article is to determine what is the available evidence in the library and information science literature on subject liaison library service model and the functional library service model in academic libraries. A narrative review methodology was used to examine the qualitative themes of both the subject liaison and

the functional library service model in academic libraries in Australia, Canada, United Kingdom, and the United States of America from 2009-2024.

Methods:

This article uses a narrative review methodology to assess research literature on subject liaison and functional library service models in academic libraries (Grant & Booth, 2009; Munn et al., 2018). More specifically, this review will focus on academic libraries in Australia, Canada, United Kingdom, and the United States of America from 2009-2024.

A modified Population, Exposure, Outcome (PEO) framework was used to determine the key search terms. The PEO framework describes the target population, the exposure or topic of interest and outcome to be examined (Hosseini, M.-S., Jahanshahloo, F., Akbarzadeh, M. A., Zarei, M., & Vaez-Gharamaleki, Y. 2024). In Table 1 is the modified PEO chart used to determine the keywords used for searching the library and information science databases used in this narrative review.

Table 1: Modified PEO Chart with Keywords (Hosseini, M.-S., Jahanshahloo, F., Akbarzadeh, M. A., Zarei, M., & Vaez-Gharamaleki, Y. 2024)

Population/Setting	Exposure
<ul style="list-style-type: none"> University Libraries College Libraries Academic Libraries 	<ul style="list-style-type: none"> Liaison Faculty/Subject/Discipline Based Service Functional Library Service Model
Keywords	
<ul style="list-style-type: none"> Academic Libraries University Libraries College Libraries 	<ul style="list-style-type: none"> Liaison Faculty/Subject/Discipline Based Service Functional Library Service Model

The inclusion and exclusion criteria used in this narrative review (see Table 2) was used to define which research papers are included and excluded from this literature review. Relatively, recent articles (2009-2024) were selected as inclusion criteria because these dates align with a discussion in the library literature on liaison and functional library service models. Included articles were restricted to Australia, Canada, United Kingdom and United States because most of the literature on liaison and functional library service models were from these countries. The official language in Australia, United Kingdom and United States is English and the official languages in Canada are English and French. Since English is one of the official languages of all the countries included in this narrative review English only studies were part of the inclusion criteria. Restricting to only studies published in English is a limitation of this study particularly for French Canadian research. The included studies must take place in an academic library since this was the setting that subject liaison library services were practiced. Due to the short time frame used to conduct this narrative review research was limited to journal publications, which is a limitation of this narrative review. This narrative review included research studies such as case studies, interviews and focus groups and survey research

and therefore editorials, opinion pieces, personal narratives and book reviews were excluded. The included studies must include a discussion of liaison and functional library service models since this was the topic of this narrative review.

Table 2: Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> Published from 2009-2024 	<ul style="list-style-type: none"> Published before 2009 and after 2024
<ul style="list-style-type: none"> Published in English only 	<ul style="list-style-type: none"> Published in language other than English
<ul style="list-style-type: none"> Research takes place in the Canada, United States, United Kingdom, and Australia 	<ul style="list-style-type: none"> Research takes place outside of Canada, United States, United Kingdom, and Australia
<ul style="list-style-type: none"> Research must take place in an academic library, university library or college library 	<ul style="list-style-type: none"> Research takes place in settings other than an academic, university or college library
<ul style="list-style-type: none"> Published in journals 	<ul style="list-style-type: none"> Published in books and book chapters, magazines, newspapers, audio-visual material, conference proceedings, thesis, and dissertations
<ul style="list-style-type: none"> Survey research, interview/focus group research, case study 	<ul style="list-style-type: none"> Editorials, opinion pieces, personal narratives, book reviews
<ul style="list-style-type: none"> Must include a discussion of both: liaison and functional library service model 	<ul style="list-style-type: none"> Does not include a discussion both liaison and functional library service model

The modified Population, Exposure, Outcome (PEO) framework (Table 1), formed the basis for creating the terms used in searching by keyword in library and information science databases. The following was the keyword search strategy used to search the library and information science databases (the exact search strategy is included in the Appendix A):

Keyword Search Strategy

Academic Librar* OR University Librar* OR College Librar*
AND
Liaison OR Subject OR Discipline OR Contact
AND
Functional Librar*
Limits Applied: English language, Peer Reviewed, 2009-2024

The library and information science databases that were searched using the previously mentioned keyword search strategy for this narrative review was Library & Information Science Abstracts (LISA), Library Literature & Information Science Full Text (H.W. Wilson), Library Information Science & Technology Abstracts (LISTA), Google Scholar and Education Resources Information Center (ERIC).

In addition to searching library and information science databases, a google search on subject liaison and functional library service models in academic libraries resulted in two weblogs that included annotated bibliographies on the topic. The search strategy for this Google Search and the detailed description of the weblogs that included annotated bibliographies are included in Appendix B. Some of the articles from the annotated bibliographies were also included in the narrative review. The database search results were de-duplicated, the exclusion criteria were applied, and the remaining articles were assessed for eligibility, and the themes were determined from the data extraction process. Articles title/abstract and full text were screened by a single reviewer. Data extraction was also completed by a single reviewer which is a limitation of this narrative literature review.

Results:

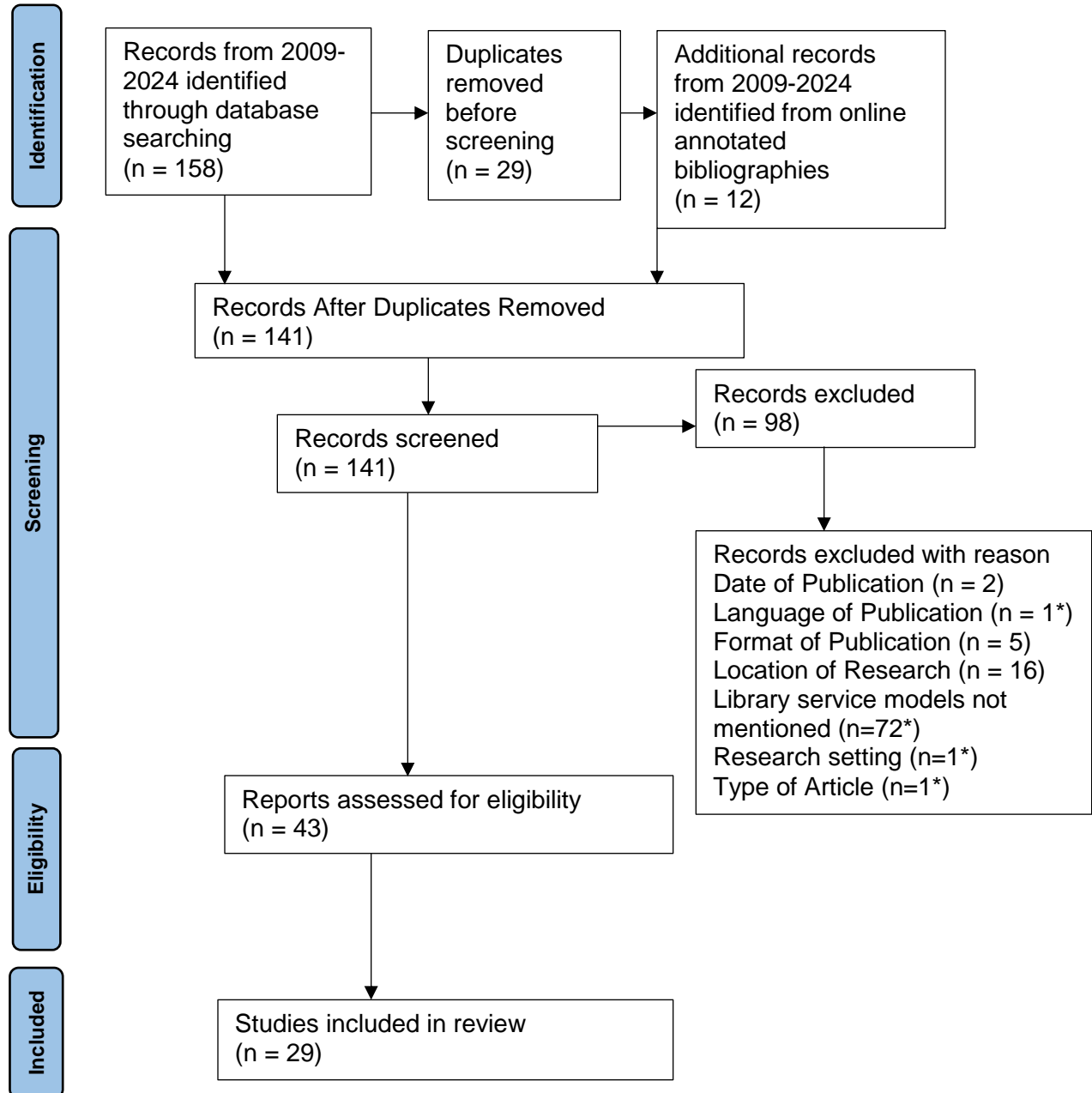
Table 3 shows the raw results of the keyword search of Library & Information Science Abstracts (LISA), Library Literature & Information Science Full Text (H.W. Wilson), Library, Information Science & Technology Abstracts (LISTA), Google Scholar and Education Resources Information Center (ERIC) databases. These results were imported into the reference management software Zotero. Zotero was used to deduplicate the results imported from the database searches. The exclusion criteria described in Table 2 were applied to the de-duplicated results. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart was used in Figure 1 to report the results of this narrative review.

Table 3: Raw Results from Database Keyword Search

Database	Results
ERIC	12
LISA	90
LISTA	4
Google Scholar	34
H.W. Wilson	18

There were twenty-nine (29) studies that were included in this narrative review. A data extraction process to identify the themes was performed on each of the twenty-nine included studies. Table 4 in Appendix C shows the outcome of the data extraction on the included studies. The data extraction process examines the type of research, the purpose of the research article, key findings, and themes for each of the included studies. Table 5 in the Appendix D is the codebook for the thematic analysis of the included studies.

Figure 1: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram (Prisma, 2020) and (Torrance et al, 2021)

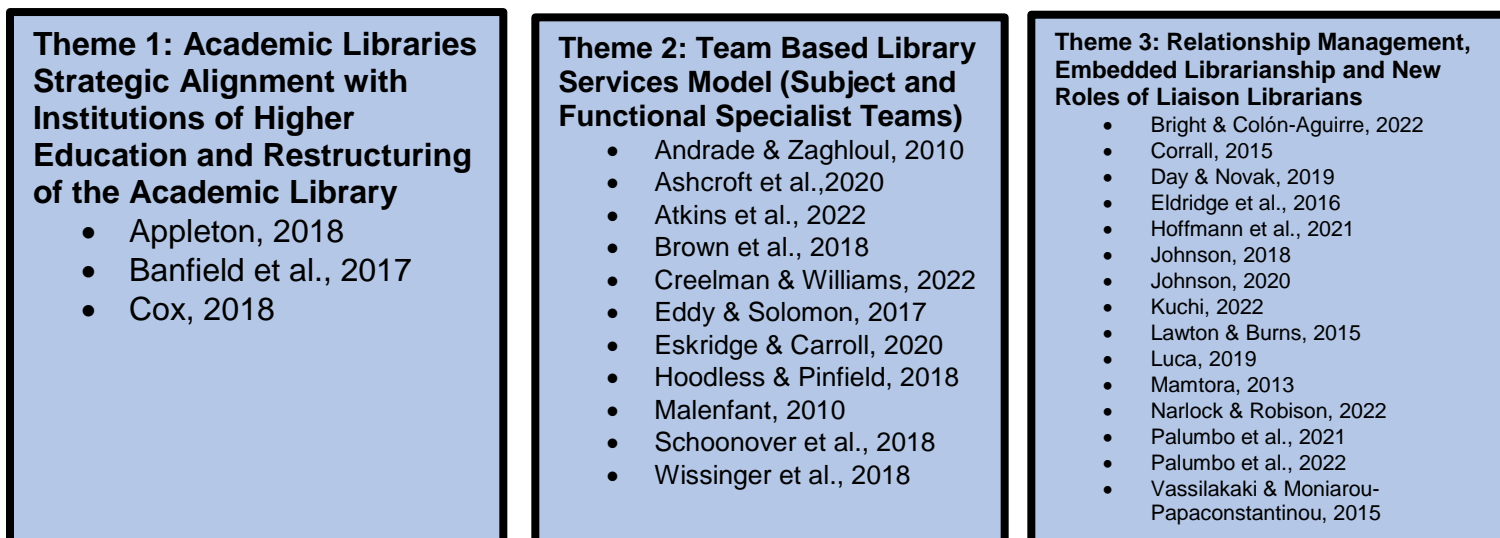


* Article excluded for multiple reasons are counted once

Thematic Analysis:

There were several themes that were identified in reviewing the included studies. Figure 2 is a diagram of the thematic analysis of the included studies. The following is a discussion of these themes.

Figure 2: Diagram of Thematic Analysis of Included Studies



Academic Libraries Strategic Alignment with Institutions of Higher Education and Restructuring of the Academic Library

One of the salient themes that emerged three times in this literature review is the need for academic libraries to align strategic goals with the strategic goals of the affiliated institution of higher education. In the article “Positioning the Academic Library within the Institution: Structures and Challenges” by Leo Appleton (2018); he explains that institutions of higher learning such as universities are changing and are facing global competition and greater accountability and therefore the strategic alignment of the academic library is of greater importance. This view is also supported by Cox (2018) in a literature review on the same topic.

Cox also discusses the restructuring of academic libraries from a subject liaison library service model to a library service model using functional experts (Cox, 2018). In the article “Re-visioning a Library Liaison Program in Light of External Forces and Internal Pressures” Banfield and Petropoulos (2017) describe the restructuring process of McMaster University Biomedical Library in Canada, from a subject liaison librarianship model to a functional library services model.

Team Based Library Services Model (Subject and Functional Specialist Teams)

The one academic library service model that was discussed most frequently (11 times) in the literature is building teams of liaison librarians and functional specialists. It was a reoccurring theme in the literature. There were several articles that discussed case studies of subject liaison librarians and functional specialists working together in teams to provide research support services to faculty at the affiliated institution of higher education. The University of Queensland Library in Australia combined a traditional subject based liaison model with a functional library services model to support research services at the university by delivering ground-breaking services related to the University of Queensland's institutional repository (Brown et al, 2018). Eddy and Solomon (2017) present a case study where hybrid model, meaning a team of subject liaison librarians and functional specialists were successfully used to provide enhanced services to faculty journal editors. Eskridge and Carroll (2020) advocate for a team of subject liaison librarians and functional specialists in providing services in science and engineering libraries. In the seminal paper Hoodless and Pinfield (2016) state that academic libraries need a balance between functional and subject based library services.

Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians

One of the main advantages of the liaison model is relationship building particularly with faculty. Many of included studies discuss relationship management. Kuchi (2022) and Corral (2015) discuss the liaison librarians personal approach to building relationships with clients and the human and relational capital created in building these relationships. In a survey of science academic librarians, the results concluded that liaison relationships remain crucial (Palumbo et al., 2021). Academic library administrators have identified in structured interviews the ability to build relationships as one of the key skills in a good liaison librarian (Johnson, 2020). Hoffman and Carlisle-Johnston discuss the liaison approach in their paper "Just Like When I Was a Liaison: Applying a Liaison Approach to Functional Library Models" (2021). One of the key components of the liaison approach is building relationships.

One of the strategies for relationship building is embedded librarianship. Embedded librarianship requires that librarians be in the physical or virtual environment of the client instead of the client going to the library. In the article "Reflections on an Embedded Librarianship Approach" Luca (2019) discusses the personal experiences and challenges in being an embedded librarian in the faculty of pharmacy.

Some of the new roles of liaison librarians include embedded librarian, teacher, technology specialist, information consultants, knowledge managers and subject librarians (Vassilakaki & Moniarou-Papaconstantinou, 2015). In the context of health libraries, some of the new roles of health science liaison librarians are clinical librarians, informationist and data management librarians (Lawton & Burns, 2014). The theme of relationship management, embedded librarianship and new roles of liaison librarians were identified in 15 studies out of the 29 studies included in this narrative review.

Discussion:

One of the key strengths and benefits of the liaison subject based library service model are the depth of subject knowledge and faculty relationships developed by liaison librarians. The liaison model assists in facilitating communication with faculty and academic departments. There is a better understanding of academic departments and subject disciplines, then the functional library service model. Liaison librarians also develop general knowledge and experience in a variety of library functional areas such as reference, information literacy, collections, scholarly communication, and research data management. Some of the advantages of the functional specialist library service model are a deep knowledge of library functional tasks such as information literacy, scholarly communication, and research data management. Whereas the library liaison librarian only has general knowledge of library functional area roles and therefore it is more difficult with the subject liaison library service model to provide deep expertise in functional library services. A disadvantage of the liaison library service model is the difficulty to recruit librarians with subject based knowledge and the growing number of roles undertaken by liaison librarians leads to heavy workload. However, functional library service models typically have a more reasonable distribution of workload and is easier to recruit. The functional library service model often has better alignment with the strategic goals of the libraries and the institution. The subject liaison does not align as closely with library and institutional strategic goals. Also, functional library specialists are better able to participate in faculty research teams. Some of the disadvantages of the functional library service model is less emphasis and understanding of subject disciplines; less understanding of academic departments and more difficulty communicating with academic departments.

The research evidence from this narrative review suggests a highly effective model is to build teams that include both liaison librarians and functional specialist. This approach known as the hybrid model takes advantage of the relationship building and subject knowledge strengths of the liaison model with the functional specialist knowledge. This narrative review suggests that the hybrid model may be desirable. However, restructuring from a subject liaison model to a hybrid or functional library model will require library staff involvement.

Limitations of this Study

This narrative review was conducted in a very short timeframe of five months and therefore the time restriction did present some limitations on the comprehensiveness of the searching and of the types of publications included in this review. To facilitate completing this literature review quickly the searching was limited to five key library and information science databases, large interdisciplinary databases such as Scopus, Web of Science and Academic Search Complete were not searched in this narrative review, however they may be searched in a future systematic review on this topic. Cited reference searching was not done and there was limited searching of gray literature. Database searching was limited to keyword searching instead of using controlled vocabulary terms.

Also, there were limits on the type of publications included in the review. This narrative review only included journal articles. Future literature reviews on library service models in academic libraries may include more comprehensive searching of databases

and gray literature as well as include different types of publications such as books, conference proceedings, thesis, and dissertations. The inclusion and exclusion criteria also created bias in limiting the literature review to English and recent peer reviewed journal articles.

These limitations in the study may have introduced biases, such as publication bias; limiting appraisal and quality assessment also introduces bias (Grant & Booth, 2009). In addition to limited appraisal, quality assessment and publication bias, other biases may have been introduced because a single reviewer was reviewing, analyzing, and synthesizing the evidence from the literature.

Conclusion:

In conclusion, due to institutions of higher education facing increased global competition and greater accountability by funding agencies; there has been pressure on academic libraries in Australia, Canada, United Kingdom, and the United States to strategically align with the goals of the affiliated institution of higher education. One of the institutional and academic library strategic goals that was apparent in the literature was an emphasis on research support services. Therefore, to enhance research support services, academic libraries are restructuring to move from a subject liaison library service model to a functional library service model. The literature suggests a highly effective model is to build teams that include both liaison librarians and functional specialists. This approach known as the hybrid model takes advantage of the relationship building and subject knowledge strengths of the liaison model with the functional specialist knowledge. There are advantages and disadvantages of all academic library service models. This narrative review indicates that the hybrid model is highly desirable or the preferred model. However, the most effective library service model will depend on the library users, library strategic goals and the institution of higher education strategic plan.

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Wissinger, C. L., Raish, V., Miller, R. K., & Borrelli, S. (2018). Expert Teams in the Academic Library: Going Beyond Subject Expertise to Create Scaffolded Instruction. *Journal of Library Administration*, 58(4), 313–333.

<https://doi.org/10.1080/01930826.2018.1448648>

Appendix A: Databases Search Strategy

- **ERIC:** noft(Academic Librar* OR University Librar* OR College Librar*) AND noft(Liaison OR Subject OR Discipline OR Contact) AND noft(Functional Librar*) AND la.exact("ENG") AND pd(20090101-20240429) AND PEER(yes)
- **LISA:** : noft(Academic Librar* OR University Librar* OR College Librar*) AND noft(Liaison OR Subject OR Discipline OR Contact) AND noft(Functional Librar*) AND la.exact("ENG") AND pd(20090101-20240429) AND PEER(yes)
- **LISTA:** (Academic Librar* OR University Librar* OR College Librar*) AND (Liaison OR Subject OR Discipline OR Contact) AND (Functional Librar*)
Limits: Peer Review, English language and Dates 01/01/2009 to 29/04/2024
Natural Language Search
- **H.W. Wilson:** (Academic Librar* OR University Librar* OR College Librar*) AND (Liaison OR Subject OR Discipline OR Contact) AND (Functional Librar*)
Limits: Peer Review, English language and Dates 01/01/2009 to 29/04/2024
- **Google Scholar:** (Academic Librar* OR University Librar* OR College Librar*) AND (Liaison OR Subject OR Discipline OR Contact) AND (Functional Librar*)
Limits: Dates: 2009-2024
Articles only search

Appendix B: Google Search

- Google Search Strategy: "functional librarian versus liaison librarian"
- Resulting Weblogs (Annotated Bibliography) used in narrative review
 - [Open Shelf: Subject Librarianship vs Functional Teams in Academic Libraries: Questions to Ask!](#): "Many Ontario academic libraries continue to make the shift from subject or discipline-specific librarianship to functional teams. What questions can we ask?" (Gordon, 2023)
 - [This Liaison Life: Adventures of an embedded business librarian: Trends in library liaisoning \(summaries of recent articles\)](#)
An annotated bibliography on liaison, functional and hybrid librarianship (stevezlib, 2023)

Appendix C: Data Extraction of Included Studies

Table 4: Data Extraction of Included Studies

Number	Citation	Type of Research	Purpose of Research	Key Findings	Themes
1	Palumbo, L. B., Bussmann, J. D., & Kern, B. (2022). A View from the Top: Library Leaders' Predictions for the Future of Science Liaison Librarianship. <i>Library Leadership & Management</i> , 36(1). https://doi.org/10.5860/llm.v36i1.7511	Survey Research	Academic Library Leaders were surveyed on the future of science liaison librarianship and the importance of science subject specialization	Key findings include that library leaders perceive functional roles such as data management and scholarly communication growing in importance, yet they are rarely seen as replacing traditional subject-based ones. Subject specialization is still seen by many as a desirable qualification for science librarians	Theme 3: Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians
2	Narlock, M., & Robison, M. (2022). Liaison Librarianship in Shiny Packages: An Exploration of Product Ownership in Academic Libraries. <i>The International Information & Library Review</i> , 54(1), 80–87. https://doi-org.ezproxy.library.yorku.ca/10.1080/10572317.2022.2025672	Case study	Investigates the emerging role of “product owner (PO)” – a librarian tasked with ensuring that a specific service meets the needs of users in academic libraries. The role of Product Owner is investigated in the context of liaison and functional roles	A case study for the “Product Owner” role in promoting the institutional Repository was used to discuss liaison librarianship and functional roles	Theme 3: Relationship Management, Embedded Librarianship and New Roles for Liaison Librarians
3	Creelman, K., & Williams, J. (2022). Subject Liaison, Hybrid, or Functional? <i>Texas Library Journal</i> , 98(2), 62–63. https://txla.org/wp-content/uploads/2023/12/TLJ-Summer-2022-Issuu-1.pdf	Case study and theme analysis	A discussion of issues related to changing library service model from liaison to functional to a hybrid library service model	University of Houston Libraries (UHL) and Texas State University Libraries are used as examples to discuss the subject liaison, functional and hybrid academic library service models	Theme 2: Team Based Library Services Model (Subject and Functional Specialist Teams)
4	Palumbo, L., Bussmann, J. D., & Kern, B. (2021). The Value of Subject	Survey Research	Academic Science Librarians were	Results showed that science	Theme 3: Relationship Management,

	Specialization and the Future of Science Liaison Librarianship. <i>College & Research Libraries</i> , 82(4), 584–608. https://doi.org/10.5860/crl.82.4.584		surveyed on perceived value of subject specialization; looked for trends toward or away from science subject specialization; and analyzed predictions about the future of science liaison librarianship.	librarians perceive subject specialization positively and predict it will continue to be necessary in the future. They also perceive that liaison relationships will remain crucial. While functional roles appear to be growing, they were not seen as replacing traditional subject responsibilities. Results suggest a shift toward a more generalist approach	Embedded Librarianship and New Roles of Liaison Librarians
5	Cox, J. (2018). Positioning the Academic Library within the Institution: A Literature Review. <i>New Review of Academic Librarianship</i> , 24(3–4), 217–241. https://doi-org.ezproxy.library.yorku.ca/10.1080/13614533.2018.1466342	Literature Review	This review discusses literature on how academic libraries have been adapting or might adapt to be effective within the institution.	Higher Education institutions have reimaged their role in society and therefore academic libraries have also reimaged services and organizational structure to reflect the changes in the larger institution. However, traditional views of the library still exist.	Theme 1. Academic Libraries Strategic Alignment with Institutions of Higher Education and Restructuring of the Academic Library
6	Eskridge, H.N., & Carroll, A.J. (2020). "Why Do We Need an Engineering Library?": Designing Team-Based Liaison Services for STEM Educators and Researchers. <i>portal: Libraries and the Academy</i> 20(4), 565-584. https://doi.org/10.1353/pla.2020.0038	Case Study	This paper examines and critiques the design and deployment of subject specialist services in science and engineering libraries.	The authors advocate for a team-based approach to STEM librarianship, highlighting its advantages over two commonly used models: the discipline specialist and the functional specialist.	Theme 2: Team Based Library Services Model (Subject and Functional Specialist Teams)
7	Ashcroft, T., Bird, L., Bull, S., Harper, P., James, A. M., & Robertson, C. (2020). Engagement With Impact: Enhancing the Student Learning Experience During Year One of a Functional	Case Study and Survey Research	The purpose of this paper is to examine the Engagement Team impact on student learning during the first	More consistency in functional model benefits of separating advocacy and engagement from	Theme 2: Team Based Library Services Model (Subject and Functional Specialist Teams)

	Library Model. <i>New Review of Academic Librarianship</i> , 26(1), 31–55. https://doi-org.ezproxy.library.yorku.ca/10.1080/13614533.2019.1630450		year of moving from a subject liaison model to a functional or task-based model at the University of Birmingham	the delivery of service	
8	Brown, S., Alvey, E., Danilova, E., Morgan, H., & Thomas, A. (2018). Evolution of Research Support Services at an Academic Library: Specialist Knowledge Linked by Core Infrastructure. <i>New Review of Academic Librarianship</i> , 24(3–4), 337–348. https://doi-org.ezproxy.library.yorku.ca/10.1080/13614533.2018.1473259	Case Study	This case study of University of Queensland examines the reorganization of the libraries to have a functional teams collaborate with traditional liaison librarians to provide research services to support the broader mandate of the University of Queensland	This article explores how functional teams, collaborating with traditional liaison librarian roles, deliver innovative services, how these services are linked by the institutional repository, and how we address key challenges of this service model.	Theme 2: Team Based Library Services Model (Subject and Functional Specialist Teams)
9	Johnson, A. (2018). Connections, Conversations, and Visibility: How the Work of Academic Reference and Liaison Librarians Is Evolving. <i>Reference & User Services Quarterly</i> , 58(2), 91-102. doi: http://dx.doi.org/10.5860/rusq.58.2.6929	Literature Review	The work of reference, subject, and liaison librarians is evolving, rapidly in some cases. This article provides an overview of the new roles that these librarians	It seems imperative if reference and liaison librarians are to remain vital to their academic mission, that they find a way to look beyond “sufficiently embedded” to explore what it might look like if they were to inextricably link themselves to the research and teaching enterprise in a systematic way. Building relationships with faculty is key to reference and liaison librarianship	Theme 3: Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians
10	Hoodless, C., & Pinfield, S. (2018). Subject vs. functional: Should subject librarians be replaced by functional specialists in academic libraries? <i>Journal of Librarianship and Information Science</i> , 50(4), 345–360. https://doi.org/10.1177/096100616653647	Semi-Structured Interview Focus Groups	This study investigates how functional teams (normally specifically designed to focus on research support, and teaching and learning support)	This paper focuses on the move by some academic libraries to replace subject-based organisational structures with new functional	Theme 2: Team Based Library Services Model (Subject and Functional Specialist Teams)

			are being used by university libraries in the UK as an alternative to subject-based teams. It aims to establish the reasons why functional teams are being introduced and determine how successfully they are perceived to be performing. In particular, the study aims to establish whether functional structures are replacing the traditional subject-based library structures, or if they could do so in the future.	structures, introducing functional specialists instead of subject librarians. However, there were also major concerns, particularly the loss of close relationships with academic departments.	
11	Wissinger, C. L., Raish, V., Miller, R. K., & Borrelli, S. (2018). Expert Teams in the Academic Library: Going Beyond Subject Expertise to Create Scaffolded Instruction. <i>Journal of Library Administration</i> , 58(4), 313–333. https://doi-org.ezproxy.library.yorku.ca/10.1080/01930826.2018.1448648	Card-sorting method	An expert team comprised of a nursing librarian, online learning librarian, information-literacy librarian, and assessment librarian sorted the learning outcomes from the Information-Literacy Competency Standards for Nursing created by the Health Sciences Interest Group taskforce of the Association of College and Research Libraries (ACRL) by grade-levels.	Results found distinguishing experts within a library supports the customization of scaffolded instruction. Additionally, using expert teams in academic libraries supports the larger mission of universities to integrate libraries into teaching and research. Identifying subject and functional experts within a library enables the customization of learning outcomes for institution	Theme 2: Team Based Library Services Model (Subject and Functional Specialist Teams)
12	Schoonover, D., Kinsley, K., & Colvin, G. (2018). Reconceptualizing Liaisons: A Model for Assessing and Developing Liaison Competencies to Guide Professional Development. <i>Library Leadership & Management</i> , 32(4), 1–36. https://doi.org/10.5860/llm.v32i4.7275	Case Study including identifying competencies and self-assessment	To reconceptualize its liaison program, the Florida State University (FSU) Libraries initiated a three-phase initiative: 1. To develop a set of core values and	The results of the self-assessment indicated that liaisons felt competent in teaching and research services, but less confident engaging faculty members	Theme 2: Team Based Library Services Model (Subject and Functional Specialist Teams)

			competencies, 2. Conduct a self---assessment based upon those competencies, 3. Create a strategic training program	in areas related to scholarly communication and digital tools.	
13	Eddy, M. A., & Solomon, D. (2017). Leveraging Librarian Liaison Expertise in a New Consultancy Role. <i>The Journal of Academic Librarianship</i> , 43(2), 121–127. https://doi.org/10.1016/j.acalib.2017.01.001	Case Study	This paper presents a case study of an advisory role that librarians successfully developed with faculty editors to increase the visibility and readership of an open access scholarly publication. The study represents an example of how expertise among liaison librarians and other library service professionals can be leveraged in new consultancy roles in support of evolving library service models.	Our case study demonstrates that current expertise among academic librarians and library staff can be applied effectively to a new kind of advisory role in support of faculty research and open access journal publication.	Theme 2: Team Based Library Services Model (Subject and Functional Specialist Teams)
14	Eldridge, J., Fraser, K., Simmonds, T., & Smyth, N. (2016). Strategic Engagement: New Models of Relationship Management for Academic Librarians. <i>New Review of Academic Librarianship</i> , 22(2–3), 160–175. https://doi-org.ezproxy.library.yorku.ca/10.1080/13614533.2016.1193033	Case Study	Librarians need new strategies for engagement. Traditional models of liaison, aligning solutions to disciplines, are yielding to functional specialisms, including a focus on building partnerships	This article tracks the work of a newly formed faculty and school engagement team. Techniques are explored for building relationship capital, anchored to a Strategic Engagement Cycle model. Theory is contrasted with the challenges of securing real buy-in to new ways of working amid diverging agendas and assumptions, notably within the library itself.	Theme 3: Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians

				Consideration is given to the retention of aspects of subject librarian roles. Investment in a relationship management function	
15	Vassilakaki, E., & Moniarou-Papaconstantinou, V. (2015). A systematic literature review informing library and information professionals' emerging roles. <i>New Library World</i> , 116(1/2), 37–66. https://doi.org/10.1108/NLW-05-2014-0060	Systematic Literature Review	This paper aims to provide a systematic review of the specific roles information professionals have adopted in the past 14 years. It aims to identify the roles reported in the literature concerning developments in the Library and Information Science (LIS) profession.	New and evolving roles were identified, mainly in the context of academic libraries. Librarians' educational responsibilities and their active involvement in the learning and research process were highlighted in all role categories identified. Collaboration among faculty and librarians was reported as a way of ensuring successful instruction. Librarians' personal views of their new and emerging roles were more frequently reported; further research is needed to shed light on academics, students, and other users' perceptions of librarians' engagement in the learning process.	Theme 3: Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians
16	Lawton, A., & Burns, J. (2015). A review of competencies needed for health librarians – a comparison of Irish and international practice. <i>Health Information and Libraries Journal</i> , 32(2), 84–94. https://doi.org/10.1111/hir.12093	Job Description Analysis, Library Association Policy Analysis and Literature Review	The purpose of this review was to uncover areas of competence which may lead to a baseline of skills for health librarians.	Ten areas of competence were found to be common to three of five library associations, which were also common to recent job descriptions. The literature	Theme 3: Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians

				reveals an ever-changing working environment for librarians working in health with opportunities for new and evolving roles.	
17	<p>Mamtora, J. (2013). Transforming library research services: towards a collaborative partnership. <i>Library Management</i>, 34(4/5), 352–371.</p> <p>https://doi.org/10.1108/01435121311328690</p>	Survey and Focus Group Research	The paper aims to explore the new and changing role of the research librarian	The research librarian needs to ensure that in turn, his or her skills and qualifications will need to be continually updated to ensure that researchers' needs are being met. Librarians must become involved in new roles, roles that are not traditionally associated with librarians, such as data management and curation.	Theme 3: Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians
18	<p>Malenfant, K. J. (2010). Leading Change in the System of Scholarly Communication: A Case Study of Engaging Liaison Librarians for Outreach to Faculty. <i>College & Research Libraries</i>, 71(1), 63–76.</p> <p>https://doi.org/10.5860/crl.71.1.63</p>	Case Study	How liaison librarians at the University of Minnesota (UMN) came to include advocating for reform of the scholarly communication system among their core responsibilities.	UMN has defined baseline expertise in scholarly communication for all librarians who serve as liaisons to disciplinary faculty members. By “mainstreaming” scholarly communication duties, UMN is declaring these issues central to the profession.	Theme 2: Team Based Library Services Model (Subject and Functional Specialist Teams)
19	<p>Appleton, L. (2018). Positioning the academic library within the institution: Structures and challenges. <i>New Review of Academic Librarianship</i>, 24(3/4), 209–216.</p> <p>https://doi.org/10.1080/13614533.2019.1582078</p>	Discussion Paper	This paper discusses the changing role of academic libraries with respect to institutions of higher learning in the UK. This article also discusses the themed journal issue on the topic	Libraries need to work hard at ensuring they are visible and hold a strong position within the academy.	Theme 1: Academic Libraries Strategic Alignment with Institutions of Higher Education and Restructuring of the Academic Library

			of “Positioning academic library with the institution” and how the articles for this themed issue were chosen.		
20	<p>Day, A., & Novak, J. (2019). The subject specialist is dead: Long live the subject specialist! <i>Collection Management</i>, 44(2-4), 117–130.</p> <p>https://doi.org/10.1080/01462679.2019.1573708</p>	Case Study	<p>This article will discuss and describe how the subject specialist’s traditional skills and responsibilities position them to be highly relevant and effective as libraries transition to new collecting approaches.</p>	<p>Due to changes in collection practices such as approval plans, demand driven purchasing, and aggregated content packages have taken the place the individual selector decisions. Libraries must recognize that the scholarly record is evolving, and that subject specialists have an important collecting role to play in this environment including collaborating with faculty as they develop digital research projects. The libraries will gain a greater understanding of the research process.</p>	Theme 3: Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians
21	<p>Hoffmann, K., & Carlisle-Johnston, E. (2021, March 26). “Just like when I was a liaison”: Applying a liaison approach to functional library models. <i>The Journal of Creative Library Practice</i>.</p> <p>https://creativelibrarypractice.org/2021/03/26/just-like-when-i-was-a-liaison-applying-a-liaison-approach-to-functional-library-models/</p>	Case study and discussion paper	<p>This article consolidates themes discussed in literature to highlight three principles of liaison librarianship. building relationships, anticipating, and meeting needs, and drawing on specialized expertise. These principles capture how liaison librarians approach their professional</p>	<p>Liaison approach can be just as relevant to functional-role librarianship as it is to subject librarianship.</p>	Theme 3: Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians

			activities and together comprise what we define as a liaison approach.		
22	<p>Johnson, A. M. (2020). Reference and liaison librarians: Endangered species or vital partners? Views of academic library administrators. <i>Journal of Library Administration</i>, 60(7), 784-799.</p> <p>https://doi.org/10.1080/01930826.2020.1786979</p>	Structured Interviews	<p>This study used structured interviews with 15 librarians at 14 geographically dispersed, medium to large academic institutions to investigate the current state of reference and liaison librarianship. Library administrators' views are important to understanding the future of this work since they advocate for resources if they see the necessity.</p>	<p>Key findings from the structured interviews of library administrators on the role of reference and liaison librarians suggest that there are the goals of the work and the urgent need to communicate its value in the current higher education landscape; however, the specific means of communication and the types of work that being a partner could include varied.</p>	Theme 3: Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians
23	<p>Luca, E. J. (2019). Reflections on an embedded librarianship approach: The challenge of developing disciplinary expertise in a new subject area. <i>Journal of the Australian Library and Information Association</i>, 68(1), 78–85.</p> <p>https://doi.org/10.1080/24750158.2019.1573631</p>	Case Study	<p>This paper details the author's experiences in situating his practice within the discipline of pharmacy and discusses some of the challenges around the scale and sustainability of such specialised support.</p>	<p>Based on the experiences outlined in this article, I argue that librarians need to develop their understanding of the information practices within the disciplines they support. The extent to which a librarian can be embedded within a discipline will depend on their local context and resources.</p>	Theme 3: Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians
24	<p>Banfield, L., & Petropoulos, J. A. (2017). Re-visioning a Library Liaison Program in Light of External Forces and Internal Pressures. <i>Journal of Library Administration</i>, 57(8), 827–845.</p> <p>https://doi.org/10.1080/01930826.2017.1367250</p>	Case Study and Survey Research	<p>In response to such changing needs and internal pressures, the Health Sciences Library at McMaster University is in the process of re-</p>	<p>Various library service models were reviewed in this article including liaison, functional and a hybrid model. The functional model was chosen as the</p>	Theme 1: Academic Libraries Strategic Alignment with Institutions of Higher Education and Restructuring of the Academic Library

			visioning its liaison program.	preferred service model.	
25	Andrade, R. and Zaghloul, R. (2010), "Restructuring liaison librarian teams at the University of Arizona Libraries, 2007-2009", <i>New Library World</i> , Vol. 111 No. 7/8, pp. 273-286. https://doi.org/10.1108/03074801011059911	Case study	The purpose of this paper is to describe and analyze the restructuring process of the University of Arizona libraries. The paper focuses more specifically on the research support services (RSS) team, one of the librarian teams, that moved from a subject liaison model to a domain model focused on different work areas.	The restructuring resulted in a few changes to the library as whole, but the largest change was the creation of the research support services (RSS) team and the move from a subject specialist model to a domain model. The research support services (RSS) team model has allowed the team to accomplish their work with fewer staff.	Theme 2: Team Based Library Services Model (Subject and Functional Specialist Teams)
26	Corrall, S. (2015). Capturing the contribution of subject librarians. <i>Library Management</i> , 36(3), 223–234. https://doi.org/10.1108/LM-09-2014-0101	Literature Review and Survey Research	The purpose of this paper is to investigate the application of Kaplan and Norton's strategic management system of balanced scorecards and strategy maps to subject librarianship in universities, with reference to the intellectual capital represented and created in the structures, relationships, and know-how of liaison work.	Liaison Librarian core functions continue, with expanded scope and competencies. Collaboration and integrated services are key trends	Theme 3: Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians
27	Bright, K. M., & Colón-Aguirre, M. (2022). Prepare to be unprepared? LIS curriculum and academic liaison preparation. <i>The Journal of Academic Librarianship</i> , 48(6), 102602. https://doi.org/10.1016/j.acalib.2022.102602	Survey and Semi-structured Interview Research	This research explored the ways in which current liaison librarians feel their Library and Information Science (LIS) programs prepared them for their role	Results of a survey of liaison librarians demonstrate that across a variety of contexts, most respondents feel their programs prepared them to be liaisons	Theme 3: Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians
28	Kuchi, T. (2022). The Strategic Value of the Liaison Librarian's Personal Approach to Client Engagement. <i>Portal (Baltimore, Md.)</i> , 22(3), 651–	Discussion Paper	This paper addresses the main factors for sustaining or improving ties	This paper examined the theoretical basis, main factors, and potential for	Theme 3: Relationship Management, Embedded Librarianship and

	679. https://doi.org/10.1353/pla.2022.0035		with users as well as the prospects for individualized working relationships by liaison librarians. This article also looks at how such an approach by liaisons is reflected in best practices, guidelines, and articles in the library literature	individualized engagement of liaisons to build and maintain relationships with students, researchers, and teaching faculty at an academic institution. Personal engagement, as it plays out in liaisons' relationship building with users, has links with human, relational, social, and decisional capital.	New Roles of Liaison Librarians
29	Atkins, J., Badger, K., Jordan, C., Nelsen, H. G., Ozment, K. & Young, O., (2022) "Translating Liaison Librarians to the Scientific Community", <i>Journal of eScience Librarianship</i> 11(1): 5. doi: https://doi.org/10.7191/jeslib.2022.1229	User Research "5 Whys Technique"	This study explores the root causes that undermine successful collaborations between scientists and their library liaisons to improve outreach to this population.	A total of four recommendations—two for liaison librarians and two for libraries as institutions—are provided to enhance the perceived value of liaison services. The recommendations for individuals include aiming to understand scientists' needs more comprehensively and actively increasing the visibility of services that respond to those needs. Those for libraries focus on cross-functional teams and new forms of assessment.	Theme 2: Team Based Library Services Model (Subject and Functional Specialist Teams)

Appendix D: Thematic Analysis Codebook

Table 5: Thematic Analysis Codebook

Themes	Description of Themes	Examples of Themes
<ul style="list-style-type: none"> Academic Libraries Strategic Alignment with Institutions of Higher Education and Restructuring of the Academic Library 	<ul style="list-style-type: none"> The need for academic libraries to align strategic goals with the strategic goals of the affiliated institution of higher education. 	<ul style="list-style-type: none"> Institutions of higher learning such as universities are changing and are facing global competition and greater accountability and therefore the strategic alignment of the academic library is of greater importance. (Appleton, 2019)
<ul style="list-style-type: none"> Team Based Library Services Model (Subject and Functional Specialist Teams) 	<ul style="list-style-type: none"> Creating teams of librarians with subject expertise and functional specialists to provide library research support services 	<ul style="list-style-type: none"> The University of Queensland Library in Australia combined a traditional subject based liaison model with a functional library services model to support research services at the university by delivering ground-breaking services related to the University of Queensland's institutional repository (Brown et al, 2018).
<ul style="list-style-type: none"> Relationship Management, Embedded Librarianship and New Roles of Liaison Librarians 	<ul style="list-style-type: none"> Discusses librarian faculty relationship management; embedded librarians; and new 	<p>Examples of Relationship Management:</p> <ul style="list-style-type: none"> Academic library administrators have identified in structured

	roles of liaison librarians	<p>interviews the ability to build relationships as one of the key skills in a good liaison librarian (Johnson, 2020).</p> <p>Examples of Embedded Librarianship:</p> <ul style="list-style-type: none">• The personal experiences and challenges in being an embedded librarian in the faculty of pharmacy. (Luca, 2019) <p>Examples of New Roles of Liaison Librarians</p> <ul style="list-style-type: none">• Some of the new roles of liaison librarians include embedded librarian, teacher, technology specialist, information consultants, knowledge managers and subject librarians (Vassilakaki & Moniarou-Papaconstantinou, 2015).
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