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Examining the Role of Liaison Librarians as Research Collaboration Partners: A Mixed-Methods Multiple-Case Study

Abstract

This sequential, mixed-methods study explored the professional relationship-building experiences of academic liaison librarians and university professors with a focus on research collaborations. A survey was administered and Chi-square and Spearman's rho analyses conducted on 2,650 responses to identify associations between organizational and individual factors and liaisons' work, perceptions of relationship-building experiences, and confidence in supporting faculty research. Following the survey, seven liaison-faculty pairs were identified and interviewed, and case study analysis utilized to explore specific liaison-faculty research collaboration relationships.

The study explored factors associated with liaisons' work, perceptions of faculty relationship-building, and confidence in supporting faculty research. The most salient factors were discipline focus of liaisons' supported areas, percentage of liaisons' position devoted to liaison responsibilities, and holding an additional post-graduate degree. Respondents who supported STEM areas expressed more negative faculty relationship-building experiences and less confidence in their ability to support faculty research. Liaisons with a smaller percentage of their position devoted to liaison work were less likely to provide research support or engage in outreach, were more likely to agree with negative relationship-building statements and more likely to disagree with positive relationship-building statements, and expressed less confidence in their ability to support faculty research activities. Finally, those who held an additional post-graduate degree more often than expected agreed with positive-relationship building statements and expressed more confidence in their ability to support faculty research.

While the seven case studies detailed the diverse nature of liaison-faculty research collaboration relationships, within the cases 21 sub-themes were identified and classified into four categories: collaborator traits, collaborator descriptors, feelings/emotions, and potential barriers/facilitators. Common collaborator traits included different areas of expertise and different perspectives. Collaborators were often described as equals, partners, or friends. Emotions/feelings expressed about their relationships included fun, comfort, and trust and respect. Potential barriers to collaborative relationship development included differences in institutional status and liaisons' workload, while institutional support and liaison proactivity were identified as facilitators.

This study indicates that liaisons' workload, institutional status, and visibility impact liaisons' ability to develop collaborative research relationships with faculty. To address these areas, it is suggested that liaisons make faculty aware of their availability to collaborate, create faculty advocates to support liaison and library efforts, and be proactive and visible in their efforts to interact with faculty. Based on these findings, suggestions of areas for future research are provided.

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Examining the Role of Liaison Librarians as Research Collaboration Partners: A Mixed-Methods Multiple-Case Study

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A Dissertation

Presented to

the Faculty of the Morgridge College of Education

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By

Kawanna Michelle Bright

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CHAPTER 1:

INTRODUCTION

Background

"What does a liaison librarian do?" This was the question that a faculty member asked me in 2013 when I introduced myself as the new liaison librarian for the College of Business. The answer to the question seemed obvious to me - as someone who had worked as a liaison librarian for various academic departments at multiple higher education institutions, I was used to working with faculty who not only knew they had a liaison but had certain expectations for the services I could provide. But as I started listing off those services, the ones I expected the faculty member to be most interested in, I received an unexpected response: "I don't need any of that." I mentally reviewed my list of services – assistance with acquiring books or journals for the library's collection related to their research, instruction on how to conduct library research for their students, help locating specific resources for any research or projects they were working on - these were the standard services my previous liaison positions had offered and had typically been all that I was expected to do.

Not ready to give up, I asked the faculty member what they needed the most help with. The faculty member listed three areas directly related to their research: A better understanding of Open Access (OA) publishing; assistance with locating the best journals in which to publish their research; and assistance with knowing how often their research

was being cited. While not outside of the realm of my capabilities as a librarian, his response was still eye opening to me. I began to question whether the activities he needed assistance with were the new norm for liaison librarians, or if this faculty member and this College of Business at my new institution were different. I informally asked peers working as liaisons around the country what their faculty expected of them, and the responses I received showed no consensus. While some were still doing what they considered to be traditional liaison work, others were receiving more requests for the same services my faculty member had listed. Most mentioned the push to support faculty research beyond just helping them locate sources for their literature reviews. And even what they described as "traditional" liaison work differed from liaison to liaison. Their responses highlighted for me just how much higher education was changing – with the focus on faculty research – and how much scholarly communication was in turn changing faculty research. I also saw a need for liaison librarians to better understand their role supporting faculty research and within the scholarly communication environment.

But my curiosity went beyond this. I wanted to also better understand the relationship between liaison librarians and their department faculty. At my previous institutions, I had been able to cultivate relationships with most of my faculty without much effort. Most had contacted me first once they knew that I was assigned as their liaison, and my e-mail introductions were always met with positive responses and requests for my assistance with different aspects of their jobs. But at my new institution I was met with disinterest, confusion, or sometimes disrespect, as faculty made it known that they did not feel I had anything to offer them. The amount of work I had to do to even get faculty to speak with me about their needs was beyond anything that I had

experienced in my nine previous years of liaison work. What made these faculty different? What factors were influencing faculty attitudes toward working with me? These were just two of the questions that I wanted to explore further, not only for my own personal interest, but also for other liaison librarians who might be encountering similar faculty responses.

Five years after my encounter with this faculty member, I finally have the opportunity to explore what I feel is an important topic within academic libraries and higher education. My research and career interests center around understanding the impact of academic libraries on the higher education institutions that they serve. My coursework in Higher Education has exposed me to the reality that while academic libraries are seen as necessary for colleges and universities, their role and impact is not often addressed within the higher education literature or from the perspective of those outside of the library. The same can be said for coverage of the people who provide the services offered by the library. Exploring the relationship between liaison librarians and their faculty will offer insight into the work that these librarians perform, and how their work impacts the faculty that they assist and the higher education institutions that both groups serve.

Problem Statement

Understanding the impact that academic liaison librarians have on the work of the faculty that they support, especially faculty research, is made more difficult by the lack of agreement of what liaison work entails. The American Library Association's (ALA) Reference and User Services Association (RUSA) offers some guidelines for the work of liaisons, focusing on collections and services, but even their definition concedes that

"librarians functioning as liaisons have various titles and job descriptions" (RUSA, 2010, section 3.5). The literature suggests a wider and continually expanding range of activities that liaisons engage in, that can be categorized into four broad categories: collection development, information literacy/instruction support, research support, and outreach. The literature also includes suggestions for the work that liaison librarians *should* or *could* be doing, expanding their role into research data management (RDM) (Blake et al., 2016; Corrall, Kennan, & Afzal, 2013; Gabridge, 2009; Karasmanis & Murphy, 2014; Koltay, 2016), scholarly communication support (Blake et al., 2016; Kirchner, 2009; Malenfant, 2010; Murphy & Gibson, 2014; Vaughan et al., 2013), and research collaboration/co-authorship (Blake et al., 2016; Pritchard, 2016). And Childress and Hickey (2014), based on interviews with 16 liaison librarians and a review of the literature, report that liaisons are adding these areas of responsibility through referral and consultation, but administration would like to see even higher levels of engagement.

While these new focus areas for liaison librarians are interconnected, it is the push for research collaboration and co-authoring that has become the ultimate goal of the liaison librarian-faculty relationship. But most studies of liaison librarian-faculty collaborations focus on collaborating on collection development (Tucker, Bullian, & Torrence, 2004) or teaching (Donham & Green, 2004; Kotter, 1999; Lapidus, 2007). The discussion of the nature of these collaborations, including the personal dynamics involved, are typically addressed anecdotally or not at all. In-depth research that looks at the liaison librarian-faculty relationship, particularly the research collaboration relationship, is scarce. Research that has tried to look at the different components of the relationship between librarians and faculty mostly looks at how faculty view librarians in

general (Cook, 1981; Divay, Ducas, & Michaud-Oystryk, 1987; Feldman & Sciammarella, 2000; Ivey, 1994; Oberg, Schleiter, & Van Houten, 1989), or faculty willingness to integrate library instruction into their courses (Feldman & Sciammarella, 2000; Manuel, Beck, & Molloy, 2005). But these studies make little to no reference to the specific relationship between liaison librarians and faculty in the departments they support.

The few studies that focus on librarian-faculty research collaboration either try to determine whether research collaboration is occurring or simply report cases where librarians and faculty collaborated on a research project, but the focus of the report is the project not the librarian-faculty collaboration. Bahr and Zemon (2000) conducted a study to determine if librarians were co-authoring publications and who their collaborators were. They determined that while academic librarians were collaborating on research, most of these collaborations were with other librarians, with fewer than 20% collaborating with faculty (Bahr & Zemon, 2000). Bahr and Zemon (2000) focus on the quantitative aspects of research collaboration, making no attempt to address why librarians were not collaborating highly with faculty despite the proclaimed increase in research collaborations in general. This appears to be the trend for Library and Information Science (LIS) articles that discuss collaboration, with authors using the word *collaboration* within the article's title or text, but the only discussion of collaboration consisting of suggestions for librarians to partner with faculty (Barratt, Nielsen, Desmet, & Balthazor, 2009) or describing the outcome of the collaboration, but not the collaboration experience itself (Lapidus, 2007). These examples highlight the misleading

use of the term ‘collaboration’ in the LIS literature, as well as the need for research on the actual collaboration experience.

Another issue with studies that appear to discuss librarian-faculty collaborations is an absence of sound research methodology application to investigating questions surrounding these collaborations. For example, while Christiansen, Stombler, and Thaxton (2004) use their results to suggest two frameworks to help guide the understanding of the disconnected librarian-faculty relationship, their study lacks research rigor. The goal of their research was to investigate a topic, and as such did not rely on a systematic or generalizable approach, including the reliance on a non-representative sample of librarians and faculty to base their observations on (Christiansen et al., 2004). Whether the results of the study or the frameworks they suggest are still relevant 13 years later is also called into question. Christiansen et al.’s approach to the topic is emblematic of most LIS research that asks key questions but suggests that others conduct the research to find the answers. For liaison librarian-faculty relationships, a 2016 article by Koltay exemplifies this issue as Koltay clearly articulates two research questions relevant to the topic from the perspective of both the librarian and the faculty member but does nothing to try to address those questions. Other investigations into the liaison librarian-faculty relationship offer suggestions for how to approach evaluation of this relationship (e.g. Kotter, 1999), but make no attempt to put these suggestions into practice.

Purpose of the Study

The overall purpose of this sequential explanatory multiple-case mixed-methods study is two-fold: 1) to investigate the work performed by liaison librarians, particularly

in support of faculty research, in various higher education settings in the United States; and 2) to explore the dynamics within the relationships that develop between liaison librarians and faculty as an outgrowth of the liaison's work. This exploration will address the lack of an overall understanding of the work academic liaison librarians perform in support of faculty research and provide insight into the impact this work has on faculty. This study will focus on a specific activity that allows liaisons to engage with faculty – research collaboration – and investigate the liaison librarian-faculty relationship through these collaborations. The two main objectives of this study will be to:

1. Define the work that academic liaison librarians perform as part of their efforts to support the work of faculty in their assigned departments, with a particular focus on work in support of faculty research activities;
2. Explore the dynamics of the liaison librarian-faculty relationship in order to understand the individual, organizational, and societal factors that may influence this relationship, with a particular focus on the liaison librarian-faculty research collaboration relationship.

The quantitative aspects of this study will utilize a national survey to gather data on what activities are commonly expected of liaison librarians in their work with faculty, and will gather data related to research support and new areas of responsibility within research support. This survey will gather demographic data related to institution type, academic discipline of departments served, and other factors identified in the literature as influencing work expectations of liaison librarians. This data will be used to develop a picture of the type of work expected of liaisons and factors that may dictate this work. The qualitative aspects of this study will utilize a multiple case study approach to take a

more in-depth look at the relationship between liaison librarians and faculty. The case studies will rely on in-depth, semi-structured interviews and document review and analysis to gather data on the liaison librarian-faculty relationship. These interviews will be utilized to gather data on how both liaison librarians and the faculty they support perceive the relationship and how each perceives the liaison's role as a research collaborator. Together, the quantitative and qualitative data will offer a view not only of the type of work that liaison librarians perform to support faculty research, but also how this work impacts the relationship between liaison librarians and faculty members, what this relationship looks like from the perspective of both parties, and what influence this relationship has on liaison librarian-faculty research collaborations.

Research Questions and Hypotheses

As this study takes a mixed-methods approach, both quantitative and qualitative research questions were explored. The quantitative research questions and hypotheses that were explored are as follows:

Research question 1: Is there an association between organizational and individual factors[1] and the type of work[2] liaison librarians perform?

Research hypothesis (H_1): There is an association between organizational and individual factors and the type of work liaison librarians perform.

[1] Due to the large number of organizational and individual factors that will be explored in this study, individual research questions for each factor have not been listed. Those factors are listed here: Carnegie classification of institution, librarian status at institution, age, gender identity, racial identity, time as a professional librarian, time in current liaison position, timing of liaison assignments, number of areas supported, number of faculty supported, discipline areas supported, education, liaison status at institution, and percent of position devoted to liaison work.

[2] While multiple types of work will be included in the survey, analysis will be done on four overarching categories: collection development, instructional services, research support, and outreach)

Research question 2*:* Is there an association between organizational and individual factors and liaison librarians' perception of their ability to build relationships with faculty?

Research hypothesis (H_1): There is an association between organizational and individual factors and liaison librarian's perception of their ability to build relationships with faculty?

Research question 3: Is there an association between organizational and individual factors and liaison librarians' confidence in their ability to support faculty research?

Research hypothesis (H_1): There is an association between organizational and individual factors and liaison librarians' confidence in their ability to support faculty research.

The qualitative research questions that were explored are:

Research question 4*:* How do librarians and faculty perceive the librarian-faculty relationship?

Research question 5*:* What role do academic liaison librarians believe they play in supporting faculty research?

Research question 6*:* What role do faculty members believe academic liaison librarians play in supporting faculty research?

Research question 7*:* How do librarians view research collaborations between liaisons and faculty?

Research question 8*:* How do faculty view research collaborations between liaisons and faculty?

Definition of Terms

A few terms that can hold different meanings are used throughout this study. To avoid confusion, these terms are defined here.

Liaison librarian: For the purpose of this study, the term liaison librarian is used to refer to an academic librarian who has been assigned to work directly with a specific academic or university department outside of the library. The following specific definition offered by Church-Duran (2017) will be utilized: "These are librarians assigned to a specific client base (a school, department, college, research center, or co-curricular unit) in a personalized, relationship-centered system of service delivery" (p. 258). This definition emphasizes the idea of the relationship, and therefore aligns with the purpose of this study.

Collaboration: Numerous definitions of collaboration exist in the literature. While a discussion of the varying meanings and uses of the term within the LIS literature are included within the literature review, for this study and in terms of the research questions explored, collaboration will be understood as a mutually-beneficial process wherein stakeholders from different domains come together in pursuit of a shared goal. This process includes shared norms, rules, and structures that guide the process throughout (Wood & Gray, 1991).

Research collaboration: Research collaboration in this study will refer to activities between liaison librarians and faculty that include a substantial role for the liaison. Activities that will constitute holding a substantial role include serving on a research or grant team, completion of a literature or systematic review for a faculty member's research publication or project, and co-presenting or co-publishing with a

faculty member. Other activities related to liaison support of faculty research will be classified as "research support."

Research support: Liaisons engage in a number of activities that provide support for faculty research. These activities are seen as being a step below research collaboration, both in terms of time requirement and in terms of librarian level of engagement. For this study, activities that constitute research support when performed outside of research collaboration include: locating a specific resource for faculty, general research consultations where liaisons offer suggestions for search terms or relevant databases, assistance with selecting a journal for publication, training on use of citation management software, and pre-publication editing.

Significance of the Study

A 2008 recession negatively impacted funding for higher education, and conversely the funding available to support academic libraries (Guarria & Wang, 2011; Lowery, 2016; Oakleaf, 2011). While most institutions have recovered from the recession, academic libraries continue to face stagnant budgets, rising service costs, and a need to identify alternative funding sources (Jones, 2018). Libraries are also being asked to provide evidence of their positive impact on the mission and goals of their host institution as a method of supporting the amount of funding they do receive (Oakleaf, 2011; Russo & Daugherty, 2013). The decline in funding has also forced libraries to do more with less, with the less including collections, services, and staffing (Guarria & Wang, 2011). The loss of staffing has led to some libraries relying on paraprofessionals and other non-librarians to perform work previously done by librarians (Garrison, 2011),

but no research has been done to investigate the impact of the loss off librarians or the work that they perform on the higher education institution.

Research is needed to determine the impact of the academic library's human capital (the librarians) on the institution's mission and goals, and on the faculty that these librarians support. Technological advancements have altered how faculty access the resources they need, with the traditional role of the library as a warehouse of physical resources rapidly fading as an increasing number of research resources are available online (Guthrie & Housewright, 2011). While academic libraries offer access to most of these resources, efforts to make research more publicly discoverable (through general search engines rather than directly through the library) have further reduced the need for faculty to physically utilize the library or interact with librarians in order to complete their research successfully (Guthrie & Housewright, 2011). Efforts need to be made to empirically show the positive impact of academic librarians on the success of higher education institutions (HEIs) and faculty research beyond assisting faculty with gaining access to research publications. This study has the potential to provide evidence of the impact of liaison librarians on the research of faculty, a factor that is highly prized by HEIs. The results have the potential to provide academic libraries with valuable information to support requests for continued financial support from their host institutions, especially when that support is in the form of librarian salaries.

This study may also impact LIS on a number of levels. Understanding the work expectations of liaisons, a popular position in libraries, can aid LIS programs in curriculum planning. Library school students can plan their practicum and volunteer experiences around gaining skills to assist in their abilities to perform as liaisons.

Understanding the factors that impact the relationship between liaison librarians and faculty can help librarians to focus their efforts when working with faculty on the faculty member's needs. Liaison librarians will be better equipped to identify barriers to their attempts to develop relationships with faculty and devise options to eliminate or address those barriers.

This study is an in-depth investigation into the liaison-faculty relationship that also has the potential to provide a deeper understanding of faculty needs in terms of the liaison-faculty relationship. Rather than looking at the relationship primarily from the liaison's perspective, this study offers an exploration of the faculty's perspective and further investigates the gap between what liaisons offer to faculty and what faculty need. The results of this study may also help faculty gain a better understanding of the work that liaisons do and how these liaisons can support the faculty member's research efforts.

Finally, this study has the potential to impact both LIS research and the research capacity of librarians. Within LIS, the adoption and application of mixed-methods research has been surprisingly slow. A 2008 study by Fidel found that of the 465 reviewed empirical research articles from 2005-2006, only 5% could be classified as mixed-methods and none referred to the research approach taken as being mixed-methods. More recently, in a 10-year review of LIS literature (2001-2010), Chu & Ke (2017) found an increase in the use of multiple methods within the literature but no effort to refer to these studies as mixed-methods. Considering the acknowledged benefits of applying mixed-methods to research, including improved interpretation of results (Fidel, 2008), it would behoove LIS to more completely take advantage of this approach.

One possible reason suggested by Fidel (2008) for the lack of use of mixed methods in LIS is simple unawareness of mixed methods as a research approach. This suggestion aligns with other literature that questions the research capacity of librarians, who may only receive basic training in research within their LIS programs, if a research course is required at all (Schrader, Shiri, & Williamson, 2012), and have gaps in their research methodology knowledge (Carson, Colosimo, Lake, & McMillan, 2014). As Chu and Ke (2017) note, the use of multiple methods within LIS research is trending, though most studies were classified as either quantitative or qualitative. It is highly possible that many librarians may recognize the value of using multiple methods but may not feel equipped to label the approach as mixed-methods or directly apply the methodology to their research needs. The application of mixed-methods within this study offers an example to LIS of the benefits that mixed-methods research can bring to investigation of LIS research questions, and also emphasizes the importance of preparing librarians to be stronger researchers. Increasing librarian research understanding and capacity may play a role in improving liaisons' ability to support faculty research, raise the status of librarians on academic campuses, and advance the image of LIS research overall.

CHAPTER 2:

LITERATURE REVIEW

This literature review is comprised of four main sections. In the first section, the role of the academic library in higher education is reviewed. This is followed by a discussion of the academic liaison librarian. Section three offers a review of the literature on academic liaison librarian-faculty relationships. And section four covers theoretical perspectives, models, and frameworks that guided this study.

Academic Libraries in Higher Education

Role of the academic library. The role of the academic library in higher education has changed dramatically, starting with advancements in technology that began to appear in the 1960s. Prior to this, the library was often seen to as the "heart" of the university, not just referring to its physical location on campus (Allison, 2015; Blackburn, 1968; Hardesty, 1991; Lynch et al., 2007). What Blackburn (1968) and others (Cooke et al., 2011; Lynch et al., 2007) were referring to was the library's role as the holder of knowledge, in the form of journals and books, that were needed by both faculty and students for research. When researchers needed to access information, they had to physically go to the library to get the book or journal that they needed. As Law (2010) stated, "No serious researcher, scholar, or undergraduate could work without the collections of the library and the interlibrary loan service" (p. 185). Even into the 1980s, academic libraries were seen as the "center of research and a key to a university's

scholarly distinction" (O'Neil, 1982, p. 5). This view placed libraries in an important position, which typically equated to better funding and support from host institutions (Lynch et al., 2007). However, this view of the library as a simple repository of information, and librarians as keepers of that information, also had the effect of creating an image of libraries and librarians as passive, idly waiting for users to need the resources they could provide (Farber, 1999; Veaner, 1985). This view had the negative effect of discounting the work that libraries did to support teaching and learning (Holley, 1961), and the passivity would work against libraries, as outside forces in the form of economic recessions and technological advancements began to change how much information users had access to and how they accessed that information.

Challenges to the library's role in higher education. Three major challenges have been identified as impacting the role of libraries in higher education: technological advancements, economic issues, and higher education accountability. While these challenges also impacted the higher education institutions that support academic libraries, it is the libraries that have had to respond to the challenges based on higher education's response.

Impact of technology. The rise of technology is identified throughout the literature as one of the major driving forces to the academic library's changing role in higher education and scholarly communication. Nearly every article that discusses the new role of the academic library or the academic librarian, starts with or includes a reference to technology's impact. Wallace (2007) probably put it best when he said, "the first decade-and-a-half of the World Wide Web has had an unsettling and in many cases disruptive impact on libraries" (p. 529). As Wallace (2007) also noted, libraries did not

shy away from technology, relying on automation technologies, computers, and the Internet to offer services and resources in new ways. Technology was seen by many as an opportunity for libraries, not just a disruptor (Karasmanis & Murphy, 2014). But this technology has led to a number of library services becoming "invisible" to users, as they no longer have to go to the library to access a resource (Abell & Coolman, 1982). Combined with other non-library entities utilizing the Internet to offer access to information resources, many in higher education began to question the relevancy of the library (Creaser & Spezi, 2014; Le, 2015; Zanoni & Mandernack, 2010).

The most pertinent technological advancements, in terms of impact on academic libraries, may be the rise of the personal computer and the Internet. Combined, these two advancements have changed how researchers conduct their research and access information (Farber, 1999). Libraries, of course, have played a role in this process. Moving from the card catalog to an online catalog that could be accessed from anywhere meant that users could start their research from anywhere as long as they had access to the Internet. Libraries also began to offer access to other electronic resources, including journals and books, making it possible for researchers to not only start their search anywhere, but also complete the search (Aked et al., 1998). Instead of users coming to the library, technology took the library to the user wherever they happened to be (Kesselman & Watstein, 2009). Faculty, in particular, took advantage of this, relying on personal computers in their offices or homes to conduct their research rather than coming into the library. However, the structure of the Internet has also led to researchers relying on generic search engines to locate information rather than searching the libraries' catalog or databases for resources.

Information-seeking behavior and electronic resources. The rise of the Internet has altered the information-seeking behavior of academic researchers. Numerous studies of the information-seeking behavior of researchers in various disciplines have shown that faculty prefer to conduct their research through the Internet. Wallis (2006) found that over 50% of the public health faculty she surveyed used the Internet most frequently when they needed to find sources for their research or teaching needs. Most interesting in this study, only 17.8% relied on library databases on a daily basis when they needed research information, most preferring to search a general search engine (Wallis, 2006). Similar findings have been seen in surveys of health sciences faculty (De Groote, Shultz, & Blecic, 2014), sociology faculty (Shen, 2007), business faculty (Dewald & Silvius, 2005; Hoppenfeld & Smith, 2014) and other disciplines, with the main differences seen in whether library databases or Google were the preferred search locations. Regardless of which online sources they search, faculty are showing a preference for accessing information in electronic formats (Salisbury, Vaughn, & Bajwa, 2004). This has been a surprise to some in LIS, who predicted that faculty would not want to utilize electronic resources due to their discomfort with technology (Vander Meer, Poole, & Van Valey, 1997). However, this preference for more electronic resources and libraries' efforts to provide those sources have created another challenge for libraries related to the cost of offering electronic access.

Economic issues. Even before the rise of electronic access to resources, libraries were facing budget issues due to the astronomical inflation rate of scholarly journals and other academic resources (Odlyzko, 2015). Technology has the potential to aid libraries in dealing with the rising cost of journals, as it costs less to produce, share, and store

electronic information (Wenzler, 2017). However, the literature indicates that these cost-savings have not been realized as the cost of journals continues to rise even in electronic formats (Wenzler, 2017). Odlyzko (2015) notes that even though library budgets have increased more than the general inflation rate, they have decreased when compared to the budgets of the universities that support them. Meanwhile, the amount of funds libraries must spend on resources has moved from one-quarter to nearly one-third of their total budgets (Odlyzko, 2015). Odlyzko (2015) suggests that the decline in funding given to academic libraries by their host institutions is a sign of the decline of academic importance, but it could be argued that it is a sign of economic issues in higher education and the library's status as a consumer rather than generator of funding (Kohl, 2006). Economic issues within higher education have impacted how funding decisions are made, with many institutions moving to outcomes based funding (Layzell, 1998). This move has pushed academic libraries into the position of competing with other academic units on campus, fighting for funding in an accountability-based environment where their perceived impact may not be positively viewed by those in charge (Karasmanis & Murphy, 2014; Nitecki & Abels, 2013).

Higher education accountability. The continued push for accountability in higher education (Burke, 2001; Deming & Figlio, 2016; Hufford, 2013; Kyrillidou, 2002) has inevitably spilled over to academic libraries in the form of pressure to provide evidence of their efficiency, effectiveness (Kyrillidou, 2002), and impact on institutional outcomes (Lindauer, 1998; Poll & Payne, 2006). Hufford (2013) equates higher education's focus on assessment to the 2005 publication of "A Test of Leadership: Charting the Future of United States Higher Education" by the US Department of

Education's Commission on the Future of Higher Education - not because it was the first, but because of the impact it had both politically and administratively on college campuses. Early responses by academic libraries to these requests included reporting statistics for their circulation, instruction, reference, interlibrary loan, and document delivery services (Kyrillidou, 2002). But the validity and reliability of this type of data was questioned and some libraries moved toward the development of indicators that would align with their institution's performance measures (Kyrillidou, 2002).

Connection to university missions. The move to make libraries more accountable in higher education has also led many libraries to recognize the need to align their missions to the missions and strategic goals of their home institutions. While this process might seem logical and something that libraries should have always done, the literature indicates that while libraries recognize that they should support the mission of the institution (Jackson, 1989; Lynch et al., 2007), many of them did not (Farber, 1999). The literature calls for libraries to shift their focus and adjust their services in order to provide mission support (Lynch et al., 2007), or in some instances, the home institution's strategic planning efforts (Joyce, Johnson, McCulley, Outland, & White, 2000; Peters & Dryden, 2011). The library's ability to align its services with the mission and goals of the home institution impacts not only the library's status at the institution, but in many cases, the funding awarded to the library (Lynch et al., 2007). With this in mind, libraries have begun to explore ways to provide support for their home institution's missions and strategic outcomes. But the ability to align to an institutional mission has been made more difficult by recent shifts in higher educational institutional missions.

Mission shift. Over the last few decades, there has been a shift in higher education missions, with institutions placing increasing emphasis on research over teaching (Astin, 1985; Bak & Kim, 2015; Blackburn & Lawrence, 1995; Budd, 2012; Merriam, 1986; Winston, 1995). For those institutions that are classified as research one, two, or three by the Carnegie Classifications of Institutions of Higher Education system, this focus is to be expected. But this emphasis is also being seen at other institutions that have previously been seen as teaching institutions (Massy, Wilger, & Colbeck, 1994; Merriam, 1986). The literature indicates that this emphasis on research may be tied to economics (Bak & Kim, 2015; Budd, 2012). Callier, Singiser, and Vanderford (2015) argue that academic institutions are all shifting to a research mission due to the funding and prestige that come with faculty winning research grants. Research is also seen as attracting the best faculty and students, who will in turn conduct more research to bring in more funding (Callier et al., 2015). The increased emphasis on research has also impacted the recruitment of faculty, as universities use research output as a major criterion for hiring (Luo, 2013). Similarly, faculty research output is also used in making evaluation, tenure and promotion decisions for faculty (Brown, 2014; Luo, 2013). With faculty research taking such a dominant role in academia, academic libraries have had to reassess their previous emphasis on supporting the teaching mission of their institutions and focus on how they can support institutional and faculty research.

Library support of academic research. It can be argued that academic libraries already support faculty research through the provision of resources. However, this view of research support is limited in nature and only addresses one aspect of faculty research. The literature does include some examples of articles that attempt to address the impact

of academic libraries on institutional or faculty research, but the focus has been on the completion of literature searches for faculty (Epstein & Rosasco, 2015; Kramer, Martin, Schlimgen, Slack, & Martin, 2011; Phoenix & Henderson, 2016) or offering faculty information literacy workshops or consultations (Stoddart, Bryant, Baker, Lee, & Spencer, 2006; Storie & Campbell, 2012). The literature offers accounts of surveys designed to ascertain perceived impact of the library on faculty research from the perspective of librarians or faculty (Budd & Coutant, 1981; Tennant, Cataldo, Sherwill-Navarro, & Jesano, 2006; Thull & Hansen, 2009). The literature also offers opinion-based articles that urge librarians to provide services that focus on faculty research or suggestions for future research that should be done to better understand the impact that libraries have on faculty research (Foutch, 2016; Oakleaf, 2011; Poll & Payne, 2006). While the literature does offer some insight into the role that libraries play in the faculty research process, these topics have not been fully researched, particularly in terms of determining impact.

Faculty research needs. For libraries to determine how best to support faculty research, they must first determine what faculty research entails and which stages of the faculty research cycle they want to support. The literature takes a very general view of research that does not delineate the different steps in the research process that faculty engage in, or that libraries could support. When libraries talk about faculty research, they tend to focus on the process of locating resources (Hey & Hey, 2006). However, a recent study by Tancheva et al. (2016) offers a much larger view of what research entails for faculty, identifying seven areas of faculty research:

- Discovering, acquiring and assessing the quality of literature;

- Formulating new research questions from the literature;
- Organization of sources, notes, and documents;
- Acquiring research support;
- Data, source, and research management;
- Collaboration and co-authoring; and
- Relationship cultivation and maintenance (p. 7)

Looking at these research aspects, we see areas where libraries are already providing support or could easily provide support, though this work is not always identified as "research support." The only aspect missing from this list that appears in the literature is libraries assisting with the dissemination of faculty research.

With a more expansive view of the faculty research process, libraries can better determine the needs of faculty in these areas. The literature reveals that this process has already started on some levels, with libraries administering local surveys designed to determine faculty's research needs. These surveys, while not extensive, have revealed opportunities for libraries to support faculty research in the areas identified by Tancheva et al. (2016), including scholarly communication, RDM (data, source, and research management), and interdisciplinary research support (formulating new research questions from the literature; collaboration; and relationship cultivation). Two of these areas – scholarly communication and RDM – help make up the very infrastructure of the newly defined faculty research environment (Brown & Tucker, 2013).

Scholarly communication. The Tancheva et al. (2016) survey identified opportunities for academic libraries to support faculty research in the scholarly communication environment. Scholarly communication can be defined as:

> …the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use. The system includes both formal means of communication, such as publication in peer-reviewed journals, and informal channels, such as electronic listservs. (Association of College & Research Libraries [ACRL], 2003, para. 1).

Academic libraries are not new to the scholarly communication environment, serving as both disseminators and preservers of research, but the same economic factors that have challenged academic libraries' ability to provide access to scholarly resources are also impacting the scholarly communication environment (ACRL, 2003). The scholarly communication environment's response to this challenge has manifested in two ways: open access (OA) publishing and the creation of institutional repositories.

Open access (OA) publishing. Librarian involvement in the OA environment is seen as a "natural fit" within the literature (Gordon, 2011, p. 166). Libraries are being encouraged to play multiple roles in OA publishing, and the OA publishing environment offers these roles through the need to understand other aspects of publishing such as copyright, licensing, digitization, and curation (Eddy & Solomon, 2017). Libraries have offered funding support to faculty who want to publish in open access journals (Tancheva et al., 2016). Libraries also encourage faculty to consider open access journals when publishing their work, since many of these journals are seen by faculty as not having a high enough impact factor, deterring faculty willingness to publish in the journal (Yang & Li, 2015). Some libraries also collaborate to produce open access journals, either providing the online space for the journal (Kim Wu & McCullough, 2015; Tancheva et al., 2016). Giarlo (2013) takes this idea a step further, suggesting that academic libraries could serve as "data quality hubs" (p. 2) that take on the role of auditing and verifying the quality of data within the research process.

Institutional repositories. McCord (2003) defines institutional repositories (IRs) as collections "of formally organized and managed collections of digital content generate by faculty, staff, and students at an institution" (para. 3). Most researchers consider IRs to be a part of the OA publishing environment, but OA is just part of the purpose of most IRs. While IRs do house scholarly sources, they also serve as a way for academic institutions to collect the informally produced work of students, staff, and faculty (McCord, 2003). IRs offer researchers an option for both storing and disseminating their research data and publications (McCord, 2003). While academic libraries are not always the university department that controls the IR, it is common to see the Library take a leadership role in support of the repository (Yang & Li, 2015). Even those outside of libraries indicate that libraries can play a part in supporting IRs. McCord (2003), for example, suggests that library expertise for IR cataloging should be sought, since cataloging of collections is standardized practice for libraries. Crow (2002), echoes this suggestion in a SPARC position paper, seeing libraries as ideal for supporting content management in IRs.

Despite IRs beginning to appear at a large number of higher education institutions, the literature indicates that faculty use of IRs remains very low. A survey conducted by Kroll and Forsman (2010) found that faculty are not using IRs to store their data or research results due to the amount of time it would take them to add their materials to the repository. Yang and Li (2015) found similar low use of the IR at Texas A&M University, as their survey results indicated faculty were either not aware of the IR or did not know how to get their materials into the IR. These studies indicate that there are barriers to getting faculty to utilize IRs to support their research, though libraries and

other academic institutions believe use of the IR to be valuable and necessary to the future of scholarly communication (Pinfield, 2005).

To combat low use of repositories, many IR supporters urge that participation by faculty should be mandatory (Pinfield, 2005). Indeed, a number of higher education institutions have passed mandates requiring faculty to publish in the IR, though most offer a waiver option (Zhang, Boock, & Wirth, 2015). Studies have found that these mandates do not necessarily increase faculty use of IRS (Zhang et al., 2015), and that in some cases, faculty strongly protest the idea of a mandate to publish in an IR (Yang & Li, 2015). While mandates may not help improve faculty use of IRs, the survey conducted by Yang and Li (2015) did offer suggestions for how libraries could improve faculty understanding and use of the IR, including offering workshops and continuing to inform the faculty about the IR. According to Crow (2002), this outreach aspect of the IR is a role suited to libraries and required if the library chooses to take on the leadership role in offering the IR for their institution. This outreach is likely to be handled by liaison librarians, who already have a connection to faculty at academic institutions. Yang and Li's (2015) survey supports this role for liaison librarians, as faculty suggested the involvement of their liaisons through training and completing research citation studies. Yang and Li (2015) also suggest that liaisons could take on new roles, as they have an opportunity to work with both the faculty and those who administer the IR.

Research data management. Research data management (RDM) is proving to be a rising area of concern for higher education institutions in the United States. Much of this concern has stemmed from policies set by major U.S. research funders that require researchers to account for data management within their grant applications. In 2003, the

National Institutes of Health (NIH) introduced a research data sharing policy that requires any application requesting grant funding in excess of $500,000 to include a data sharing plan (NIH, 2003). In 2011, the National Science Foundation (NSF) began requiring a data management plan be submitted with every application for funding (Reilly & Dryden, 2013), and in 2015 announced the requirement that all articles in peer-reviewed publications be made available in a public repository within one year of publication (NSF, 2015). This policy matches the one also created by the Bill and Melinda Gates Foundation, which announced that starting in 2015, all researchers who receive funds from the Foundation have to make any papers and data sets created from their research freely available (Van Noorden, 2014). This has left researchers struggling to understand how to manage their data in a way that will also make it accessible per these policies, while libraries are shifting services to support faculty in this area (Barnett & Keener, 2007; Reilly & Dryden, 2013). Despite the NIH and NSF providing examples of data sharing plans, the literature indicates that faculty are still confused about RDM. A survey conducted by the University of Houston Libraries determined that most faculty serving as primary investigators on grant projects had no idea what RDM entailed, nor how their project data was being managed (Peters & Dryden, 2011). The survey also found that support for RDM at the University of Houston was disjointed and unorganized (Peters & Dryden, 2011). The authors saw this as an opportunity for the Libraries to take a leadership role in supporting RDM by serving as a facilitator between the different groups that were offering support (Peters & Dryden, 2011).

Some libraries are suggesting an even more direct role in supporting faculty research related to data management by providing training, storage space, or personnel to

assist with data plan development or actual management of the data. One example of this was implemented at the University of Houston where the Libraries created a form to assist researchers with creating data management plans (Reilly & Dryden, 2013). Going a step further, McCluskey (2013) proposed that managing the data from faculty research projects is a role that librarians could take on. This is a role that faculty could potentially welcome considering that many faculty report not having the time, knowledge, or interest to deal with data curation (Giarlo, 2013). Corrall, Kennan, and Afzal (2013) conducted a study to determine if faculty saw libraries as having a role in RDM, including assisting with RDM technology, helping faculty deposit their date into relevant repositories, helping faculty to locate available data sets, developing tools to manage data, and supporting both data management plan development and institutional data management policies (p. 654). Their study found that in 2012, RDM was not seen as a priority by many, and due to the specialized expertise needed to work with RDM, the library was not seen as the proper entity to offer RDM services (Corrall et al., 2013), a sentiment echoed in a 2015 survey conducted by Library Journal Research and Gale Cengage (2015) Learning that showed faculty were not interested in getting help from librarians for their RDM needs. Librarians would need to gain both skills and confidence in order to provide RDM services (Corrall et al., 2013),

Despite the barriers found in the Corrall et al. (2013) survey, academic libraries are continuing to consider the role that librarians can play in RDM. This consideration is seen in the emergence of librarian positions that either require RDM skills or that will support RDM. Xia and Wang (2014) see the emergence of the data services librarian as an opportunity for libraries "to get directly involved in [the] research enterprise" (p. 385).

As suggested by the Corrall et al. (2013) survey, these data services positions are offering library support for RDM, particularly the development of data management plans (Xia & Wang, 2014). The 2015 survey conducted by Library Journal Research and Gale Cengage Learning found that data management was amongst the missing services that faculty requested most often and that librarians indicated they would like to offer, indicating a mutual interest in libraries offering RDM support to faculty.

Interdisciplinary research. A final area where libraries are well-positioned to provide faculty research support is with interdisciplinary research. One of the most widely used definitions of interdisciplinary research is the one adopted by the National Science Foundation (NSF) and articulated by the National Academies in a 2004 publication called *Facilitating Interdisciplinary Research:*

> Interdisciplinary research (IDR) is a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice. (p. 2)

The literature indicates that interdisciplinary research is on the rise (Budd, 2012; Glynn & Wu, 2003; Mack, 2012), especially in the sciences and social sciences (Kesselman & Watstein, 2009). Even LIS education is becoming more interdisciplinary as it attempts to investigate the interconnected areas of information, technology, and people (Luo, 2013). Luo (2013), as part of a two-stage study, found that most LIS education researchers (between 62% and 77%) were collaborating on research studies, grant proposals, publishing, and research idea development with researchers from other disciplines.

Libraries, particularly liaison librarians, are being considered as necessary to assist faculty in working across disciplines (Mack, 2012; Rodwell, 2001). Liaison

librarians, who often work with multiple departments on campus, are seen as potential connectors between the disciplines (Budd, 2012), able to forge "a common understating [*sic*] of each discipline's unique perspectives, methods, and vocabularies" (Kesselman & Watstein, 2009, p. 393). Many liaisons also hold multiple master's degree, a fact that Fonseca and Viator (2009) argue qualifies them as "multidisciplinary experts" (p. 84). At the Purdue University Libraries, a new type of liaison librarian position, the information specialist, was created to, among other responsibilities, support interdisciplinary research (Garritano & Carlson, 2009). The discussion of the library's role in interdisciplinary research has also led to the idea of librarians taking a more collaborative role in interdisciplinary research by serving as equal members on interdisciplinary research teams. Lorenzetti and Rutherford (2012) interviewed four liaisons working in the bioinformatics field who felt interdisciplinary research involvement was "a proper and necessary activity for the profession" (p. 276). And Brandenburg, Cordell, Joque, MacEachern, and Song (2017) recently recounted three examples of successful interdisciplinary projects at the University of Michigan that included librarians as "equal contributors" (p. 272).

Supporting faculty research through new library roles. The recent publication from Brandenburg et al. (2017) brings to the forefront the new roles that libraries are taking on in support of faculty research, emphasizing the liaison librarian in the role of collaborator. Church-Duran (2017) echoes this sentiment, suggesting the liaison librarian as "a powerful tool for partnering with researchers" (p. 258). The idea of collaborating with faculty as a means of supporting their research has been discussed in the literature for decades. In 1961, Edward G. Holley wrote that "in an academic setting the librarian,

through his contacts with the individual faculty members, is peculiarly situated to render direct and effective aid to scholarship" (p. 732). Twenty-four years later, in his 1985 prognostic article about the future of academic librarianship, Allen B. Veaner suggested "collaboration with faculty as expert intermediaries in the research process" (p. 216) as a means for academic librarians to gain better visibility on campus. In 2009, Kesselman and Watstein called for liaison librarians to "be proactive and embed themselves" (p. 393) in multidisciplinary research collaborations. While collaboration on faculty research is clearly desired by liaison librarians, the literature indicates less success in this area and more success collaborating with faculty in the liaison's collection development and information literacy/instruction support responsibilities.

The next section of this review will look at the work of the liaison librarian, particularly in relation to the relationships that liaisons form with faculty, the factors that impact those relationships, and what role these factors may play in the ability of liaison librarians to support emerging faculty research needs and form collaborative research relationships.

Academic Liaison Librarians

Under varying titles, the liaison librarian role has been utilized in academic libraries for a number of years. Depending on location and purpose, these librarians have been referred to as "subject specialists" or "subject librarians" (Church-Duran, 2017; Dale, Holland, & Matthews, 2006; Gibson & Coniglio, 2010; Johnson & Alexander, 2008; Rodwell, 2001), "subject bibliographers" (Church-Duran, 2017), "embedded librarians" (Blake et al., 2014; Carlson & Kneale, 2011; Freiburger & Kramer, 2009; Hall & Marshall, 2014), and more recently, "informationists" (Bracke, 2017; Federer, 2013).

Regardless of the title of the position, the work of these librarians has held a common theme of connecting a librarian directly to an academic department to provide library services, and the term "liaison" librarian has been used most frequently in the literature. This prevailing purpose of creating a stronger connection between academic libraries and academic departments is to improve the services that libraries offer to academic departments (Miller, 2014). Most liaison programs emphasize that this connection goes both ways, not only allowing liaisons to share information with academic departments but also allowing liaisons to collect information from the departments that is pertinent to the work of the library (Hendrix, 2000). This idea of two-way communication was repeated throughout the literature (Silver, 2014; Tennant & Cataldo, 2002). The exact format of this connection tends to vary from description to description, but typically includes relationship building (Díaz & Mandernach, 2017); partnering (Carlson & Kneale, 2011; Church-Duran, 2017; Creaser & Spezi, 2014; Silver, 2014), coordinating (Carlson & Kneale, 2011), consulting (Budd, 2012; Tennant et al., 2006; Travis & Farmer, 2007), or collaborating (Carlson & Kneale, 2011).

The role of the liaison librarian. Just as it has been difficult to determine a single title for liaison librarians or a single goal for their work, creating a clear picture of their roles and responsibilities has also proven to be a daunting task. Some of the difficulty can be attributed to the fact that the liaison's work is dictated by external factors, particularly the type of academic institution, the mission of the institution, as well as the mission and goals of the academic library itself (Gibson & Coniglio, 2010). But one over-arching goal of the liaison librarian position that is emphasized in the literature and relates directly to the idea of creating connections, is to develop relationships with

the faculty in their assigned departments. Before a discussion of the liaison librarian-faculty relationship can be undertaken, a review of liaison roles and work must be conducted, as these aspects of liaison positions directly relate to the type of relationships liaisons form with faculty.

The liaison librarian position is not seen as one-size-fits all – the work expectations and responsibilities of a liaison at one institution will likely be very different than the work expectations of a liaison at a different institution (Church-Duran, 2017; Gibson & Coniglio, 2010). Even within the same institution, due to differing needs of academic departments and disciplines, the work performed by each liaison is likely to be different (Mozenter, Sanders, & Welch, 2000). With this said, there are some general classifications of the work performed by liaisons that can be culled from the literature. In general, liaisons tend to focus their work in four main areas: collection development, information literacy/instruction support, research support, and outreach. However, the activities that fall into these areas, and the amount of effort devoted to each of these areas, varies between institutions and between liaisons, and have been known to change as the needs of the institution change.

Shifting roles. A number of reports in the literature are geared towards detailing the restructuring of liaison programs in response to changing needs of both the library and the institution. Miller (2014) recounts the shift that took place at Rollins College, as liaisons moved from an almost sole focus on instruction, to a liaison program that also included liaison involvement in collection development. The opposite shift was seen at Plattsburgh State University of New York, where liaison responsibilities shifted from being solely focused on collection development to being a conduit for addressing faculty

needs through communication with departments while assisting the library group designated to complete collection development (Hendrix, 2000). And even internationally, Karasmanis & Murphy (2014) describe the shift that took place at La Trobe University in Australia, with liaisons moving from a teaching support role to a research support role. While the previous accounting of restructured programs indicated programs that shifted from one emphasis area to another, it is also common to see liaison programs change through expansion. Mozenter, Sanders, and Welch (2000) detailed this type of expansive restructuring of the liaison program at the University of North Carolina at Charlotte Library, with new services added to the program and the involvement of new librarians. This shifting aspect of the liaison position contributes to the difficulty in creating a global picture of what a liaison librarian does, though a few recent studies have attempted to accomplish this goal. The following sections will first detail what information can be found in the literature on the work and responsibilities of liaison librarians, followed by a discussion of the few studies that have attempted to create a global picture of this work and the limited success of those efforts.

Liaison work and responsibilities. As previously mentioned, the work and responsibilities of liaison librarians can be classified into four areas: collection development, information literacy/instruction support, research support, and outreach. The following section will detail the work that liaisons engage in within these categories as identified in the literature.

Collection development. Liaison collection development responsibilities include a number of different activities but can be generally viewed as selection or deselection. Most articles that describe collection development activities refer to resource selection -

books, journals, and databases (Tennant & Cataldo, 2002) and resource deselection of these same items. Historically, liaisons have also used collaboration with faculty on collection development projects as a way to also determine faculty research resource needs and to gather feedback on library services (Jensen, 2009), making collection development important to other aspects of liaison work. Collection development for many liaisons was the main reason for connecting to faculty, but due to the time investment that collection development requires, it has also proven to be a difficult area of faculty engagement for liaisons (Jensen, 2009).

Information literacy/instruction support. Instruction support from liaisons is discussed in the literature nearly as often as collection development. Even more so than with collection development, instruction support actually entails a variety of different activities, ranging from library orientations (Tennant & Cataldo, 2002); instruction integrated into courses (Tennant & Cataldo, 2002); instruction of stand-alone classes (Tennant & Cataldo, 2002); co-teaching courses with faculty (Silver, 2014); teaching semester-long courses (Silver, 2014); creation of online tutorials and webpages (Moniz, Henry, & Eshleman, 2014); and review of course proposals (Moniz et al., 2014; Mozenter et al., 2000);

Information literacy. The hallmark of library instruction support is information literacy, which is defined as the ability "to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (Ambach et al., 1989). While the importance of information literacy skills development has been touted by libraries for decades, the increasing amount of information that is being produced and made available on a daily basis has added renewed emphasis on the

importance of researchers gaining these skills (Saunders, 2009). Liaisons who provide instruction for their departments may concentrate on developing the information literacy skills of both students and faculty. Information literacy skills development also supports the liaison's goal of assisting users with accessing the resources provided by the library (Tennant & Cataldo, 2002). Much of the literature is devoted to the efforts of liaison librarians to integrate information literacy into the curriculum, efforts that are often stymied by their institutions and academic faculty not sharing the librarian's view of the importance of information literacy (Fonseca & Viator, 2009). But some libraries have benefited from their institutions recognizing the value of information literacy and making it a core outcome for the entire institution (Lindstrom & Shonrock, 2006) – offering the library an avenue for working with faculty to integrate information literacy into the curriculum.

Research support. Describing the work that liaisons do to support research is more difficult than describing the work liaisons undertake in collection development and information literacy/instruction support. Part of this difficulty may be due to shifts in academic research that have been created by the changing scholarly communication landscape and the new emphasis that universities place on faculty research. Another difficulty may be the general way that research support is discussed in the literature. While the literature offers details for how liaisons can improve their collection development or instruction support, research support is often tagged onto the end of a list of activities liaisons should be involved in, almost as an afterthought. A 2014 international study by Creaser and Spezi that utilized both case study design and survey administration, found that while research support was offered by academic libraries, this

support was not as developed as teaching support. What little coverage there is in the literature shows a range of services, from helping faculty locate resources relevant to their topics in the form of literature searches (Epstein & Rosasco, 2015; Freiburger & Kramer, 2009; Kramer et al., 2011; Phoenix & Henderson, 2016), to the use of bibliometric analysis to help faculty determine the impact of their research (Ball & Tunger, 2006; Corrall et al., 2013), and in rarer cases, collaborating on research and grant projects (McCluskey, 2013). Support for some of the newer research topics like OA publishing and IR were mentioned by Creaser & Spezi (2014), though the authors clarify that this support was more likely to be offered and seen as important outside of the US.

Literature searches. Literature searches are a staple of liaison work, offering librarians a chance to show off their expert searching skills by locating relevant articles on a faculty member's research topic (Karasmanis & Murphy, 2014). This type of research support was one of the most commonly reported in the literature (Creaser & Spezi, 2014). Within the Health Sciences, literature searches take the form of systematic reviews, which are viewed as a more in-depth literature search due to the need to also track the search process and adhere to inclusion and exclusion criteria (Karasmanis & Murphy, 2014). While systematic reviews appear to be on the rise in terms of importance, basic literature reviews have begun to lose their popularity as a service, likely due to the ease of access and use of research databases (Creaser & Spezi, 2014).

Research consultations. While there is some confusion as to whether research consultations are more a form of instruction support or solely research support, due to the tendency of librarians to "teach" users about library research during the consultations, most classify these consultations as research support. Research consultations offer

liaisons the opportunity to work with users in the beginning stages of their research. The consultation itself may include help determining search terms and keywords, selection of the best databases to search, suggestions for how to evaluate sources, and assistance with acquiring difficult to locate sources (Moniz et al., 2014). While searching the literature is an aspect of research consultations, there is a distinction between this type of searching and the literature searches that liaisons perform on the behalf of faculty. Within research consultations, liaisons guide faculty through the process of searching the literature, while with literature searches, the liaison is completing the search and providing resources to the faculty member. The research consultation is typically a much more cooperative process.

Bibliometric analysis and citation searching. Bibliometric analysis and citation searching are quantitative research metric processes that rely on citation of published research to determine the impact of academic research (Karasmanis & Murphy, 2014). These metrics are used as part of grant applications, program evaluation, for tenure and promotion decisions, and to help faculty determine the most impactful journals for publishing their research (Brown, 2014; Karasmanis & Murphy, 2014). Surprisingly, despite the proliferation of research on the application of bibliometric analysis, Creaser and Spezi (2014) found that these services received the lowest importance rating of all services rated in their study within the US responses, indicating a gap between the need for a service and the interest in offering that service.

Research and grant project support. While faculty have been engaged in research projects both grant funded and not, the literature does not offer much on liaison involvement in these projects. There are some references to liaisons supporting these

projects (Hall & Marshall, 2014), or the need for liaisons to be involved in these projects (Carlson & Kneale, 2011), but few with details of specific projects. Carlson and Kneale (2011) offer an example of an article that focused on what liaisons *could* do as part of a research project team, including help with dissemination of the final project results or designing data management workflows. The authors go on to offer advice for the liaison librarian who wants to work on faculty research projects, but none of this advice is supported by research. Fonseca and Viator (2009) go so far as to suggest that academic librarians have been underusing their opportunity to collaborate on faculty publications, as if all it would take to be welcomed into a project is to ask. A similar suggestion was made by Brandt (2010) who felt that getting researchers to work with librarians would not "be a hard sell" (p. 46). But four years later, librarians in Creaser & Spezi's (2014) study indicate a desire to develop in this area, though faculty may not welcome this involvement – indicating that it may not be as easy as Fonseca and Viator suggest. Statements like the ones made by Fonseca and Viator, and the non-empirical suggestions in the literature, beg to question which reality is the correct one. Either liaison librarians can easily join faculty research projects as collaborators, or liaisons must find a way beyond the supposed barriers to develop these collaboration opportunities.

Supporting new library roles. The new roles identified for academic libraries earlier in this review, especially scholarly communication, OA, and RDM, fit squarely in the research support functions of liaison librarians. Indeed, it is the liaison librarian who is often tasked with providing these new services to faculty in their departments (Gibson & Coniglio, 2010), with some calling it a "responsibility" of the librarian (Gordon, 2011). Some libraries see this as an opportunity for liaisons to demonstrate the relevance of

libraries within academia (Gordon, 2011; Silver, 2014). But the real question may be whether faculty will be interested in liaisons providing these services. This question is especially important in light of surveys indicating that faculty do not see much value in the traditional services that liaisons have provided, let alone new services (Brown & Tucker, 2013). At the University of Las Vegas, Nevada (UNLV) Libraries, a 2012 survey indicated that faculty rated their interest in the idea of expanded research support provided by the Libraries as very low, leaving the UNLV Libraries to wonder if they should provide the services because they feel they may become valuable to faculty, or focus on providing the surveys faculty saw as valuable (Brown & Tucker, 2013).

Getting faculty to show interest in the new roles liaisons offer in support of faculty research may require librarians to change their image to one that conveys their knowledge about research (Brown & Tucker, 2013). But this very knowledge has also been called to question, as researchers doubt whether liaison librarians will have the expertise or knowledge to provide research support, especially in terms of scholarly communication and RDM (Church-Duran, 2017). The question of liaisons' skills and abilities and how it impacts the work they do and their ability to form relationships with faculty will be discussed later in this review.

Outreach. While outreach impacts the other three categories of liaison work, it is addressed individually here due to the importance attributed to it within the literature. Gibson & Coniglio (2010) argue that outreach cannot be seen as an "add-on," and must be "woven in" to the work of liaisons (p. 108). Hall and Marshall (2014) suggested that outreach could be used interchangeably with the term liaison, indicating the entrenchment of outreach within liaison work. Liaisons employ a number of tools to reach the users in

their departments, ranging from direct contact with faculty, to taking advantage of indirect opportunities to inform users about the services the offer. Chan (2006) sees the outreach taking place through the other aspects of the liaison's position, during consultations or while teaching.

Oddly enough, one of the best outreach tools identified by liaisons have been surveys administered to assess the use, needs, and satisfaction levels of their users. While the data collected from these surveys has been useful, liaisons have also found that the surveys serve as vehicles for better informing faculty of the services that the libraries and liaisons can offer (Miller, 2014). Even more important, liaisons have determined through these surveys that not only do faculty not know about the services that liaisons offer, many do not even know they have a liaison for their department (Haines, Light, O'Malley, & Delwiche, 2010; Tennant & Cataldo, 2002). Almost uniformly, libraries that ask faculty if they know about the liaison program find relatively low numbers who do. Tennant and Cataldo (2002) found that only 32% of faculty surveyed at their institution knew about the liaison program, and only 33% of those who knew about the program had ever used the liaison's services. These surveys have also shown the potential to facilitate expanded use of liaison services by putting the presence of the liaison front and center in the minds of the faculty. Jensen (2009) found that a survey administered to determine the collection development needs of Physics faculty led to more faculty in the department showing interest in working with liaisons in other areas including instruction and scholarly communication. The faculty responses to these surveys indicate the necessity for liaison librarians to dedicate time to outreach efforts as part of their core responsibilities.

Large-scale studies of liaison roles and responsibilities. The previous review of the work that liaison librarians engage in highlights just how varied and changing the work of liaison librarians appears to be. The picture created here was culled together through review of copious publications, as few attempts have been made to determine the work of liaisons beyond individual institutions. In fact, only two, recent large-scale studies that attempted to get a clear picture of the work that liaison librarians engage in within academic institutions were identified in the literature. One of the more structured studies was conducted in 2015 by the Association of Research Libraries (ARL) and was actually the third study of liaison librarians conducted by ARL, with the previous two done in 1992 and 2007. The most recent study keyed in on the changes occurring within the liaison librarian position, though the researchers still felt the survey allowed for trend analysis based on the data collected in the previous surveys (Miller & Pressley, 2015). While the survey offers a large-scale view of liaison activities in academic libraries, the usefulness of the information is limited for a few reasons:

- The survey is administered to only ARL institutions (currently numbering 123) and received feedback from approximately half of those institutions. As liaison librarians work in more institutions than those represented by ARL, the results of the survey only apply to ARL Libraries and may not reflect liaison librarian responsibilities at other higher education institutions. For the sake of comparison, it should be noted that the most recent data set of information about the characteristics of academic libraries collected by the Association of College and Research Libraries (ACRL) includes data from 1,499 institutions (ACRL, n.d.).

- The survey looks at the liaison program as a whole, and not the individual liaison librarian. Lists of activities that liaisons at the institution engage in may not be representative of the work of each liaison.
- The survey is completed by a representative of the library, and a review of the responses shows that sometimes these representatives did not know the answer to the question.

Where the survey and its results have value is in providing a sense of the enduring prevalence of the liaison position in academic libraries; and in reaffirming the literature that indicates the shifts taking place in academic libraries, particularly with scholarly communication, RDM, and OA, and the role that liaisons are asked to play in supporting these areas (Miller & Pressley, 2015). What this study does not provide is a clear picture of the individual liaison librarian's work.

The second large-scale study that attempted to characterize the work that liaison librarians engage in was also conducted in 2015, but information on the study was only recently published. Nero and Langley (2017) set out to administer a survey that would allow them to create an open access data set that could be used to analyze the activities and trends found in liaisons' relationships with academic departments, while also creating a benchmark of liaison work at this point in the twenty-first century. The survey itself consisted of 29 items designed "to assess how subject liaisons in academic libraries build, support, and maintain relationships recently or currently with their academic departments" (Nero & Langley, 2017, p. 8). The demographic questions included in the instrument would allow additional quantitative analysis to be conducted on the data set as the authors attempted to collect data on factors that could impact the liaison-faculty

relationship including size of institution, institutional affiliation, level of subject-related expertise, and discipline status of departments served (Nero & Langley, 2017). The researchers were able to collect data from 1,808 librarians, accomplishing their goal of creating a large data set, but the usefulness of that data in understanding how liaisons "build, support, and maintain relationships" (Nero & Langley, 2017, p. 8) is questionable due to the survey design.

The survey itself was only tested by liaisons who represented one of the author's home institutions. It is likely that their view of liaison work is reflective of the work that takes place at their institution and may not be reflective of the work that takes place at other academic institutions. Further description of the survey design and development is lacking, and it is unclear if the authors piloted the survey before collecting data from their 1808 respondents. In addition, while the authors indicated a desire to use the data to look at liaisons relationships, they only ask one question that directly addresses relationships ("How effective do you think your outreach is?"), and offer answer choices that ask respondents to rate their effectiveness based on how strong they feel their relationship is with their departments (Nero & Langley, 2017). The real value of the study designed by Nero and Langley may lie in the fact that they offer both the survey and the data set to anyone interested in repeating or extending their study. The survey, though flawed, does provide a possible base for the creation of a survey that investigates the work of liaison librarians and how that work relates to their ability to build relationships with their departments. Also, as some of the questions are of interest within this study, including those questions in a future survey would allow for a trend comparison of the collected data.

The need for another large-scale survey. Despite the efforts of both Miller and Pressley, and Nero and Langley, a clear view of the work that liaisons are engaged in, especially in light of the changing higher education and scholarly communication landscapes, still needs to be developed. An attempt needs to be made to reach a plethora of liaisons through an instrument created with sound survey design techniques in mind. This instrument needs to include aspects of both previous surveys, but also fully address the range of activities identified throughout this literature review. In addition, the survey needs to include questions that fully get at the liaison-faculty relationship and how the work of the liaisons connects to these relationships. It is the liaison-faculty relationship that this literature review will now address.

Relationships in liaison work. For liaisons to have the opportunity to engage in the work previously described, they must be allowed entry by the departments that they work with. The most important factor in their ability to be successful as liaisons may lie in their ability to work fully with faculty within those departments. The faculty are seen as the liaisons' gateway to supporting the creation of strong collections, to supporting the educational mission of the institution, and to fully supporting the research mission of the institution. This view acknowledges the importance of the liaisons ability to form a relationship with faculty in their departments, as it is these relationships that offer liaisons opportunities for engagement in academia. While research on the importance of these relationships to the work of the liaison is available, this research offers mostly anecdotal suggestions for possible barriers to relationship building. Even more lacking is research that investigates the dynamics of the liaison-faculty relationship. The next section of this

review will detail what information is available in the literature on the liaison-faculty relationship, and how this information supports the need for additional research.

The Librarian-Faculty Relationship

Whether discussing the traditional liaison position or the new roles that liaisons are being encouraged to take on, relationship building with faculty is the linchpin to successful liaison work. Moniz, Henry, and Eshleman (2014), in the preface of their book *Fundamentals for the Academic Liaison*, state that "the establishment of relationships with the faculty they serve is the cornerstone of good liaison work" (p. viii). However, research on the liaison-faculty relationship has been limited at best, and poorly executed at worst.

History of the librarian-faculty relationship. Librarians and faculty have a long history together in higher education, so literature on both the general librarian-faculty relationship and the liaison librarian-faculty relationship is relevant to understanding how these relationships have developed and implications related to their quality. Reviewing even just the titles of articles that discussed the relationship between librarians and faculty in higher education give the indication that the relationship is strained at best, and contentious at worst. In his 1969 article entitled "Faculty-Librarian Conflict," Marchant details the history of conflict between faculty and librarians in higher education, predicated on faculty fear of the information that librarians had the power to provide to students (through books) that might contradict what the faculty member wanted to teach. Logsdon (1970) categorized librarians and faculty as "eternal enemies," with faculty seeing librarians as bureaucratic barriers to their work (p. 2872). In 1981, Mary Biggs entitled her article "Sources of Tension and Conflict Between Librarians and

Faculty," clearly indicating a troubled relationship between the two groups. And McCarthy (1985) entitled her article "The Faculty Problem," to emphasis the issue that librarians face when trying to work with faculty to integrate information literacy instruction into the curriculum, when the faculty themselves do not possess the skills the librarian wants to teach. The source of this conflict is thought to lie in multiple possible areas, including the suggestion that librarians and faculty do not speak the same language (Webb, 2012), though the main answer may be found in the structure of academia itself and the hierarchies that exist between different stakeholders on campus.

Higher education hierarchies. Conflict between faculty and librarians may be tied to the hierarchical structure of higher education institutions and the difference between faculty's and librarians' status within that hierarchy. This hierarchy did not exist initially, as librarians were often faculty members who were selected to lead the library (Biggs, 1981; Marchant, 1969). However, the development of library and information science programs that focused on preparing librarians who were capable of organizing rapidly expanded collections and pushing these collections out to the students, created a new type of librarian whose work was seen to be at odds with that of the faculty (Marchant, 1969). Faculty also began to feel as if librarians were encroaching on their territory – that of educating students (Marchant, 1969). This sense of faculty being territorial about their teaching and the classroom is still prevalent in the literature more than fifty years later (Given & Julien, 2005). But since many of these newer librarians did not necessarily have faculty status, they found it difficult to gain standing as educators in the eyes of faculty (Marchant, 1969).

Power differentials. The hierarchy found in academia also indicates a power differential exists between faculty and librarians. Miller (2014) identifies this power differential as "a complex web of power relations" (p. 493) that influences how faculty and librarians interact. Faculty are seen as having power and influence on campus (Hardesty, 1991), with the ability to participate in campus leadership and decision-making, as evidenced by their presence on campus-wide committees, where librarians are less likely to have a seat (Marchant, 1969). This power differential places librarians into a lower role, that of servant to faculty (Marchant, 1969). A recent study by Ahmed Alwan and Joy Doan attempted to take a more in-depth look at the impact of power on liaison-faculty relationships by investigating the librarian's experiences of microaggressions in interactions with faculty (Peet, 2017). While their study results have not been published, in an interview for the *Library Journal*, they indicate that microaggressions may be present in these relationships, begging to question what role power plays in the experiences of these microaggressions (Peet, 2017). Alwan and Doan (as cited by Peet, 2017) did indicate that whether or not librarians had faculty status did not make a difference in terms of experiencing microaggression, but the literature includes previous references to the idea that faculty status does impact the power differential between faculty and librarians. The question of how power differentials impact the liaison-faculty relationship is yet to be determined.

The role of faculty status. Whether or not librarians hold faculty status became the center of conflict on many campuses, a topic that continues to be debates in the current literature. Librarians without faculty status were viewed as being less-than by the faculty at their institutions, partly due to faculty viewing their education as less rigorous,

and thus not up to the level of true faculty (Marchant, 1969). The fact that most librarians only receive a master's degree while most faculty are required to earn a PhD is used to support this argument of decreased rigor for librarians (Fonseca & Viator, 2009; Marchant, 1969). While Fonseca and Viator (2009) point out that there are other disciplines that also only require a master's degree in order to become teaching faculty, this is not as likely at larger research institutions and only holds for some disciplines. Faculty have also indicated that the curriculum of library schools does not prepare librarians to be faculty, instead preparing them to work in a service capacity in what is viewed as a service-oriented profession (Creaser & Spezi, 2014; Fonseca & Viator, 2009). This emphasizes the fact that in the eyes of the faculty, librarians are not doing the same work, so should not receive faculty status.

The idea that faculty status of liaison librarians could affect faculty willingness to collaborate with the liaison librarian has been suggested in the literature but not fully investigated. The importance of understanding whether faculty status for librarians can impact the relationships they strive to build with faculty can be seen both in liaisons' ability to accomplish and to evaluate their work. On the one hand, if faculty do not view librarians as fellow-faculty members, it may be more difficult for the librarian to convince the faculty member to work with them. Indeed, Lewis (2010) suggests that faculty status can serve as a librarians-faculty relationship enhancer. But on the other hand, if faculty do view liaisons as peers, they may be less willing to offer honest feedback about an individual liaison's effectiveness (Miller, 2014). Librarians' own views of the importance of faculty status also may play a role. Librarians in the US who participated in Creaser and Spezi's (2014) study indicated that whether or not they had

faculty status affected how they interacted with faculty and determined whether they were perceived by faculty as equals. This finding is contradictory to the suggestion of Fonseca and Viator (2009) who reported a number of librarians felt they should not have faculty status, a view that Fonseca and Viator saw as leading to librarians becoming separate from and not equal to faculty, the very opposite of the outcome expressed by librarians in Creaser and Spezi's study.

Faculty perceptions of librarians. How faculty view liaison librarians has been suggested as an important factor in liaisons being able to form collaborative relationships with faculty. Liaisons are often faced with trying to change the stereotypical view that faculty have of their abilities. For some faculty, this view was formed while they were graduate students at institutions different from the ones they work at (Miller, 2014). Or new faculty may form their opinions based off the thoughts of their departmental colleagues (Miller, 2014). Wherever or whenever their perceptions were formed, it remains that many faculty have what can only be viewed as negative perceptions of librarians. Faculty may view librarians as being on the same level as clerks or administrative assistants and treat them as such (Marchant, 1969; Moffett, 1982; Oberg et al., 1989). Some librarians inadvertently validate this view by assisting faculty with work that the faculty see as something a graduate assistant could take on, including providing copies of research articles and books (Holley, 1961). But others suggest that providing other services, especially through collaborations with faculty, can help to change the faculty perception of librarians as mere service-providers (Russo & Daugherty, 2013).

While there are arguments against this view of librarians as clerks or assistants and not on the same level as faculty, these arguments are not coming from faculty, but

rather from librarians who feel that their work is misunderstood by faculty. The findings from an impromptu survey conducted by Given and Julien (2005) indicated that not only do librarians feel faculty do not understand the work that librarians do, they also see that work as being mechanical rather than intellectual. Feldman and Sciammarella (2000) described this misunderstanding as not having the complete picture, referring both to faculty not understanding the work of liaisons, but also liaisons not fully understanding the work of faculty. But while some librarians may want to deny that differences exist between the work of librarians and faculty, other librarians acknowledge that the differences exist, and if librarians want faculty to see them as their peers or equals, then librarians will need to do the same work as faculty (Veaner, 1985). The fact that academic faculty are expected to do work (including teaching and research) that many librarians are not required to do (Given & Julien, 2005), adds credence to faculty's efforts to define themselves as being different, if not better, than librarians. The literature urges librarians to take on the same work of faculty, including research, and to strive for tenure and promotion, in order to be seen as equals or peers to academic faculty (Webb, 2012).

Physical structure and librarian visibility. Two other factors identified as impacting the liaison-faculty relationship that are tied closely to the structure of academia, though on a more physical rather than perception level, are the physical locations that faculty and librarians exist in and the lack of librarian visibility created by that structure. The factors are predicated on the history of librarians existing only in the library building itself while faculty exist only in their offices in buildings located away from the library. Depending on the size of the campus and the placement of the

buildings, faculty and librarians could find themselves dealing with a physical separation on top of the perceptual separation already discussed.

Distance. The physical distance between where faculty work and where librarians work may serve as a barrier to the ability to form relationships between the two. Most faculty work in buildings and spaces that, depending on the size of the institution, may be a great distance from the library. This can make it more difficult for the liaison to become known to the faculty that they support. Holley (1961) felt that librarians who spent too much time in the library were putting themselves at a disadvantage in their quest to support their faculty, and suggested they make trips to the faculty members' departments to visit the faculty in their spaces. This recommendation is even more relevant for liaisons today, as technology as nearly eliminated the need for faculty to physically visit the library, reducing librarians' opportunities to see faculty in the librarian's space. Most of the literature that offers guidelines for liaison work suggests liaisons visit their assigned departments on a regular basis (Silver, 2014). Some liaisons take it a step further and attempt to take up more permanent space in the departments they serve by holding office hours in the department's space (Kesselman & Watstein, 2009; O'Toole, Barham, & Monahan, 2016; Silver, 2014; Vander Meer, Poole, & Van Valey, 1997; Williams, 2000) or requesting permanent office space in the department (Freiburger & Kramer, 2009; Johnson & Alexander, 2008; O'Toole et al., 2016). The liaison program at the Arizona Health Sciences Library has many librarians who spend more time in their departments than they do in the library, with demands for services increasing enough to warrant the addition of a second librarian to support one subject area (Freiburger & Kramer, 2009). And the University of Michigan instituted a

field librarian program that created a permanent office for the liaison librarian in the academic department they supported (Johnson & Alexander, 2008). Suggesting that liaisons visit and spend time in the physical space of faculty is an outreach technique that serves to increase the visibility of the librarian.

Librarian visibility. Due to technology making it less necessary to visit the library and less necessary to engage with librarians to gain access to information sources, librarians have seen a decline in their visibility on campus. Spending more time outside of the library is also related to increasing liaison librarian visibility. Being invisible to faculty on campus and in their departments, has been seen as contributing to faculty not knowing about liaison librarians and not understanding what liaison librarians actually do (Fonseca & Viator, 2009). Abell and Coolman (1982) suggest that this invisibility also negatively impacts faculty access to resources, an issue when most liaison programs endeavor to increase this access. In a survey conducted by Arendt and Lotts (2012), liaisons indicated that being visible to their departments was the third most important thing for them to do behind communicating and knowing their departments. However, it should be noted that the faculty surveyed in the same study placed visibility as the sixth (or last in the list they were given) most important thing for liaisons to do (Arendt & Lotts, 2012), suggesting a disconnect between the perceptions of liaisons about their visibility and how visible the faculty view the liaisons to be.

Differences in the perceived importance of the liaison-faculty relationship. Another disconnect in perception related to the liaison-faculty relationship may be the most difficult for liaison librarians to over: a perceived difference in the importance of the relationship itself. A study that involved sociology faculty found that librarians and

faculty members have different perceptions of the librarian-faculty relationship, and that while librarians think about this relationship as part of their normal work concerns, most faculty do not (Christiansen et al., 2004). Christiansen et al.'s (2004) research posited what they called "an asymmetrical disconnection" (p. 117) between librarians and faculty, with both groups dependent on the other and both important to the success of their institution, but essentially working separately. Christiansen et al. (2004) found that a change in the work of faculty did not necessarily lead to an expected change in the work of librarians, despite faculty performing work that often required the assistance of a librarian. But the full import of the disconnect between librarians and faculty was seen in their perceptions of the cause of the disconnect – while librarians strive to connect with and support the work of faculty, faculty show a lack of understanding of what librarians do and do not seek the same connection (Christiansen et al., 2004). The importance of this "asymmetrical disconnection" needs to be evaluated further, as Christiansen et al. only put forth the idea of the disconnection, not any evidence to support its veracity.

Personal and individual factors. While the factors covered previously could be construed as environmentally-based and slightly outside of the control of the liaison librarian, there are some factors thought to impact the liaison-faculty relationship that appear to be directly related to skills, abilities, attitudes, and knowledge of the liaison and/or faculty member.

Personality. The personality of both liaison librarians and faculty members has been suggested as a factor that can impact the liaison-faculty relationship. Some researchers assert that librarians and faculty are similar, especially in terms of their personalities (Holley, 1961). A 2002 study by Scherdin added credence to this idea

through comparisons of the Myers-Briggs Type Indicators (MBTI) of faculty and librarians. Scherdin (2002) found that faculty and librarians share the same individual personality preference indicators and share more of the combined letter types (i.e. INTJ or ENTJ). Scherdin (2002) found that most academic librarians and faculty have either ISTJ or INTJ personality types, identifying them as introverted, intuitive or sensing, thinking, and judging in nature. While Scherdin (2002) asserts that these shared personality indicators should lead to faculty and librarians being natural colleagues and "provide a strong basis for collaboration" (p. 237), the literature indicates that this is not the case. Raspa and Ward (2000) suggest that this shared introversion, "a natural resistance" (p. 88) to collaboration, makes it harder for librarians and faculty to collaborate. Other factors, such as the ones previously mentioned, and others yet to be considered, must also be affecting the liaison-faculty relationship.

Communication. A liaison's ability to communicate effectively with faculty has also been indicated as a factor that can impact the liaison-faculty relationship. Moniz et al. (2014) contend that "communication is the key to establishing faculty relationships, and those relationships lead to success as a liaison" (p. 35). Communication appears in nearly every publication that discusses liaison librarian-faculty relationships, especially the idea of using communication to keep the faculty informed about changes in library services (Holley, 1961), and to keep the liaison on the radar of the faculty member. The ability to communicate may be related to the personality factors that were discussed by Scherdin (2002), as those who share the Thinking personality type (as faculty and librarians do) tend to prefer e-mail as the preferred method of communication, a suggestion supported by the literature (Library Journal Research & Gale Cengage

Learning, 2015; Ochola & Jones, 2001; Tennant & Cataldo, 2002). However, whether e-mail is the best method of communication for liaisons trying to build relationships with faculty remains to be seen.

Some of the literature suggests that face to face communication may produce positive outcomes for liaisons such as dispelling stereotypes about what librarians do (Thull & Hansen, 2009), and tying directly to the idea of the importance of liaison visibility. But there are also contradictory accounts of face-to-face interactions not correlating with increased used of liaison services (O'Toole et al., 2016). Even more interesting may be the findings of a joint study between The Library Journal and Gale Cengage Learning that found that nearly every librarian (98%) who participated in the survey felt that communication between liaisons and faculty needed to be improved, while 45% of faculty who participated felt that no changes needed to be made in the communication between liaisons and faculty. This disparity shows another area of disconnect in the perceptions of liaisons and academic faculty, similar to the disconnect suggested by Christiansen et al. that warrants further investigation. In the meantime, some liaisons show a preference for applying both e-mail and face-to-face methods of communication to support relationship building with faculty (Glynn & Wu, 2003).

Liaison workload. The increasingly demanding workload of liaisons has been cited as a major concern for liaisons' ability to be successful in their work. Miller and Pressley (2015) noted that in both the 2007 and 2015 surveys conducted by ARL, dealing with competing responsibilities was one of the top three challenges faced by liaison programs. Some of these competing responsibilities can be attributed to liaisons still participating in the traditional work that they have always done, while being asked to take

on more responsibilities within the areas of scholarly communication and RDM (Miller & Pressley, 2015). For many liaisons, workload issues stem from the number of departments that they are asked to support. ARL's 2015 survey showed that for the 67 libraries that responded, none had programs where all liaisons only had one department, and 17 had programs where all liaisons had more than one department (Miller & Pressley, 2015). While not every department is likely to utilize the liaison, some departments are likely more demanding than others, leading to liaisons who feel stretched too thin. A heavy workload may also temper the addition of new services as liaisons worry that successful services may not be scalable or sustainable (Burke & Tumbleson, 2013). A demanding workload could have negative implications for a liaison's ability to build relationships with faculty, as the liaison may have to make tough decisions about their availability to assist with faculty projects that might require more time than their other responsibilities will allow. Add to this the need for training to either stay current or update their skills, and liaisons may find they simply do not have enough time to cultivate strong relationships with their departmental faculty.

Liaison subject-expertise. Another factor that is based in the skills and abilities of the liaison and related to how liaisons communicate is whether liaisons have an educational background or expertise in the subject areas that they support. Moniz et al. (2014) list acquiring subject knowledge as a "major component to a liaison's success" (p. 17), but whether liaisons need in-depth knowledge, training, or education in the subject areas they support has been hotly contested in the literature. Assigning liaisons based on their background experience or knowledge of the subject area appears to be standard practice, though this is not always possible depending on the subject area and the needs

of the institution (Feetham, 2006), and some assignments are based on interest of the liaison instead (Miller & Pressley, 2015; Risser, White, & Benson, 2000; Ryans, Suresh, & Zhang, 1995; Tennant & Cataldo, 2002). Some liaisons have suggested that aligning librarians with departments where they have some subject expertise can aid in the ability of the liaison to more effectively partner with faculty (Miller, 2014). While the liaison program at the University of Florida Health Science Center Libraries did not require their liaisons to have backgrounds in their assigned subject areas, they did expect liaisons to immerse themselves in their assigned subject area in order to help them to "become more competent and confident in that area" (Tennant & Cataldo, 2002, p. 22). Similarly, Henry (2012) reported on a library that did not require their liaisons to specialize in the subjects they supported, and the liaisons relied on textbooks, their faculty, and completion of research in their assigned areas to gain subject knowledge.

The general argument for having a background in the subject area of the departments liaisons support is that it will make faculty more likely to accept the assistance of the librarian (Rodwell, 2001). This easier acceptance of the liaison by the faculty member may be due to the liaison being able to speak the same "language" as the faculty member. Garritano and Carlson (2009) sees this as not only a way to improve communication, but also as a trust-building mechanism that will allow the librarian to be more readily accepted as part of a research team. Arendt and Lotts (2012) did find a weak correlation between liaison's having education in the subject area of their departments and how successful the liaison felt they were, but no relationship between having education in the subject area and how satisfied liaisons were with the relationships they had with their departments. While Arendt and Lotts did not ask a similar question of

faculty, a small study at the University of Florida Health Science Center Libraries found that faculty appear to value having liaisons with subject-expertise in the faculty member's area (Cataldo, Tennant, Sherwill-Navarro, & Jesano, 2006). Currently, only librarians working in special libraries such as law or health sciences, are likely to be required to hold a degree in the subject-area they support (Rodwell, 2001). These librarians can be viewed as a special type of liaison since, while they do focus on specific subjects, they work within an organization or institution that concentrates only on that subject area (Crumpton & Porter-Fyke, 2016).

Whether liaisons have subject expertise in their assigned areas or not, development of this expertise, including professional development and training to keep liaisons up to date, have been recognized in the literature as necessary for liaison success (Holley, 1961; Moniz et al., 2014; Tennant & Cataldo, 2002). Holley (1961) suggested that liaisons review books and journals in the subject areas of the faculty they want to assist, as a means of becoming well-read in the faculty's subject areas. The literature is full of suggestions for liaisons to join professional organizations related to their subject areas (Fonseca & Viator, 2009; Moniz et al., 2014; Silver, 2014; Tennant & Cataldo, 2002), complete additional course work or continuing education courses in their subject areas (Silver, 2014; Tennant & Cataldo, 2002), review the same literature that their faculty review (Tennant & Cataldo, 2002), and attend any campus and local events related to their subject areas (Fonseca & Viator, 2009; Silver, 2014; Tennant & Cataldo, 2002). And it should be noted that academic librarians, more than any other faculty member, are likely to have an additional advanced degree (Fonseca & Viator, 2009). Whether this is due to the LIS field's tendency to recruit second career people, or because

librarians feel the second degree is necessary for their work as liaisons, is unclear. But it does lend support to the idea that having subject knowledge may play a role in the work of liaison librarians.

Impact of disciplinary differences. While subject-expertise may influence the ability of liaison librarians to form relationships with faculty, a similar concept should also be considered: the impact of working with different disciplines. The literature often indicates that a liaison's ability to create a relationship with faculty in their department is influenced by the discipline area. This idea is based on the idea that different disciplines (i.e. the sciences, social sciences, and humanities) have different information needs (Silver, 2014; Tennant & Cataldo, 2002), utilize the library and its resources differently (De Groote et al., 2014; Haines et al., 2010; Shen, 2007; Wallis, 2006), have different views of scholarly communication and RDM topics (Antonijević, & Cahoy, 2014; Garritano & Carlson, 2009; Peters & Dryden, 2011), and have different views on collaboration (Bahr & Zemon, 2000; Hara, Solomon, Kim, & Sonnenwald, 2003; Jensen, 2009; Luo, 2013). Even within disciplines, differences between areas such as physics and chemistry, have been found, and may impact how librarians approach forming relationships with faculty and faculty willingness to work with liaisons in these subject areas. Unfortunately, most studies that discuss these disciplinary differences focus on only one discipline or attempt to generalize based on looking at one sub-set of a disciplinary area (e.g. using English to represent all of Humanities).

Self-belief and confidence. The final personal factor mentioned in the literature that may impact liaisons' ability to form relationships with faculty is related to self-belief, confidence, and how liaisons perceive themselves. As previously mentioned, how faculty

perceive librarians may impact whether the faculty member is interested in working with the liaison. However, how the librarian perceives themselves may have just as much impact. As Fonseca and Viator (2009) put it, "If we ourselves cannot remember that we are about more than just answering questions or performing "duties," how can we expect our colleagues among teaching faculty to do so?" (p. 89). Some studies suggest that liaisons may lack confidence in their ability to work with faculty (Creaser & Spezi, 2014). Fliss (2005) indicated that liaisons may find approaching faculty to talk about teaching to be a daunting prospect, indicating a lack of confidence or even courage to put themselves out there. Manuel, Beck, and Molloy (2005) suggested that liaisons needed the self-confidence of having faculty status to help them establish teaching relationships with faculty. And the need to gain confidence in themselves in order to do their work, especially when asked to take on new roles related to faculty research, was identified in a survey completed by Corrall et al. (2013). Without this confidence, Corrall et al. (2013) see liaisons struggling to form relationships with faculty to support faculty research.

Attebury and Holder (2008) attempted to investigate different factors thought to influence the confidence level of new liaison librarians. They utilized a survey to collect data on liaisons' activities and backgrounds, including the amounts and type of training and support the liaisons received to support their jobs, and a single question to rate the librarians' confidence in their ability to be successful as liaisons (Attebury & Holder, 2008). The results of the survey hint that factors such as years of experience, workload (in terms of number of subject areas they support), and academic background may impact a librarian's confidence in their ability to be successful as liaisons (Attebury & Holder, 2008). While interesting, the results of Attebury and Holder's (2008) study are not easily

generalized to all liaisons, as their focus was on new librarians and their survey only asked one question about confidence. Whether confidence gained by status or confidence gained by know-how, the role that confidence or lack of confidence plays in the liaison-faculty relationship needs to be investigated further.

Limited research into the dynamics of liaison-faculty relations. Despite the abundance of mentions within the literature, actual, in-depth studies that attempt to apply theory, create frameworks or models, or investigate the actual dynamics involved in the liaison-faculty relationship are extremely limited. The extensive review of the literature performed for this study was only able to locate three studies that attempted to investigate the liaison-faculty relationship beyond anecdotal means. One of the studies used a quantitative approach, while the other two relied on qualitative methodologies.

Differences in faculty and liaison satisfaction with liaison relationships. Arendt and Lotts (2012) utilized a survey of liaisons of English, chemistry, and psychology departments and faculty who taught in these departments to try to determine if a relationship existed between factors related to the liaison, their work, and ratings of success and satisfaction with the liaison's work. Arendt and Lotts (2012) surveyed both liaisons and faculty, and were able to compare 66 matched pairs of liaisons and faculty from the same institutions. The surveys found that most liaisons felt they were successful as liaisons and satisfied with the relationship they had with their departments, but that the librarians' perception of their success (high or low) did not correlate with their faculty being more or less satisfied (Arendt & Lotts, 2012).

While the results of this study were interesting, the study suffered from numerous design flaws that impacted the authors' ability to interpret their results. For one, the

authors placed limitations on their included participants based on a flawed assumption. The authors chose to only survey larger institutions, assuming that "libraries at smaller institutions or community colleges would be less likely to have liaison programs" (Arendt & Lotts, 2012, p. 158). A search of the literature would have easily revealed that smaller institutions do indeed have liaison programs that should be included in studies of the liaison-faculty relationship. One example of a smaller institution that has contributed to the literature on liaison-faculty relationship is Albion College, a private liberal arts college in Michigan whose library conducted a survey to determine how faculty perceived the library – a process that included asking about the faculty perceptions of the liaison librarians (Oberg et al., 1989).

Another concern with the Arendt and Lotts' (2012) study in terms of their participant selection was the process they used to create matched pairs of liaisons and faculty. Once the researchers had selected the institutions to include in their study, they chose to only contact liaisons and faculty in three subject areas: chemistry, English, and psychology (Arendt & Lotts, 2012). While these choices did give them some disciplinary diversity, it also limited their ability to talk about disciplinary differences since these three sub-disciplines cannot be generalized to the other sub-disciplines in their areas. And interestingly enough, though the author's consciously chose three different departments, their article did not report that analysis based on disciplinary differences was conducted. The next concern with their selection process was their decision to randomly substitute any librarian if a librarian that matched their chosen disciplinary areas could not be found, and even to settle for any library staff member if they could not determine the role of the librarians listed in a selected college's directory (Arendt &

Lotts, 2012). For the selected faculty, the researchers also chose to randomly select one faculty member from each of the three selected departments (Arendt & Lotts, 2012). These methods likely led to participants being included in the study who did not match the purpose of the study, as well as limiting their chances of created matched pairs of liaisons and faculty by only approaching one faculty member per department.

Additional issues with this study were found in the survey instrument used. The wording of the questions opened the door for difficulty in interpreting what a selected response actually meant. For example, most of the questions started with the lead-in "Do you or your library provide the following" (Arendt & Lotts, n.d., p. 10). While the authors avoided the issue of creating double-barreled questions by including a response option that would allow respondents to designate whether they were answering in the affirmative for the library or for themselves, they introduced another layer to their interpretation of the results that was not reflected in the results (Arendt & Lotts, 2012). While the authors do acknowledge that some of their results were likely skewed by "flaws in this survey's design and implementation" (Arendt & Lotts, 2012, p. 174), publication of a study with such a clearly flawed design is indicative of issues in LIS research and an example of a lack of research rigor when addressing this topic. This is also an example of a study that would have benefited from a mixed-methods approach, to follow up on the surprising survey findings through interviews with the study participants.

Social capital in the liaison-faculty relationship. Tim Schlak (2016) attempted to analyze the engagement work of liaisons using social capital as an operative. Schlak's (2016) work is driven by a similar impetus for this study, the lack of qualitative

investigation into the "interrelational dynamics inherent in liaison activities" (p. 412). Schlak (2016) views social capital as a way to tie together the literature on liaison-faculty relationships that focuses on trust, shared meaning, faculty-librarian collaborations and relations, intellectual capital, and liaison skills and competencies (p. 412). Schlak (2016) relied on interviews of eight liaisons identified by their deans or directors as having good relationships with faculty. His findings suggest that social capital theory can be applied to understanding how liaisons view their relationships with faculty, offering a framework based on the concepts of commitment, contribution, reciprocity, trust and trustworthiness, and network positionality (Schlak, 2016).

Where Schlak's research and results falter are in the overall design of the study. Schlak relies on a participant selection process that he acknowledges likely introduced bias into his study. By only seeking out liaisons who were seen as having strong relationships with faculty, Schlak lost out on the ability to investigate whether liaisons who struggle to form strong relationships with faculty would also describe their relationships within the social capital framework. Schlak also fails to include faculty in his study, a detail he also acknowledges as a limitation, offering a one-sided view of the role social capital could play in the liaison-faculty relationship. The absence of faculty from the study is particularly odd considering the emphasis that both social capital theory and the liaison literature place on the importance of the relationship. Only looking from the perspective of one party in the relationship offers an incomplete view of the import and applicability of social capital to understanding the liaison-faculty relationship, though it does offer a guiding framework for future studies, including this one.

Relationship building. The second study found in the literature was recently published and provides the most relevant look at the liaison-faculty relationship in terms of the interest of this planned study. The study, conducted by Díaz and Mandernach (2017), explored the relationship building efforts of liaison librarians and the faculty they serve. The researchers wanted to know how skills, aptitudes, responsibilities, and core proficiencies affected how liaisons build relationships with faculty, and to see if commonalities could be found to describe successful collaborations (Díaz & Mandernach, 2017). The researchers found what they refer to as "a modest, yet useful, set of potential best practices in the area of relationship building" (Díaz & Mandernach, 2017, p. 277). These best practices were presented as the following themes: equal interest in the project, follow-through, shared understanding of project goals, pushing boundaries, good two-way communication, building trust, and networking (Díaz & Mandernach, 2017).

While the results of this study are intriguing, the study does have limitations that are not addressed by the authors. Some of the limitations associated with the study have to do with the study design. The authors describe their study as case studies, but do not offer any additional information about the structure of this design. Since the study was conducted at only one institution, the case study design makes sense, though it appears the researchers were referring to their pairing of liaisons and faculty to be interviewed as their actual cases, rather than the institution as a case. But the way their results are reported imply that the institution itself is the case. This approach needs additional explanation to better understand the value of the case study design to the research process. Additionally, the researchers do not offer any demographic information on the

study participants, other than their status as liaisons or faculty members. There was no information offered for the discipline areas that liaisons and faculty represented, gender, or length of time working with each other – all factors that the literature suggests may impact relationship building.

Despite these limitations and concerns, the study by Díaz and Mandernach offers a great foundation for continued exploration of the dynamics involved in the liaison-faculty relationship. Unlike the study conducted by Schlak, Díaz and Mandernach's study does include the faculty, allowing the researchers to gather data from both perspectives. The proposed themes offered by the authors offer suggestions for concepts to be included in future studies of the relationship. And the results of the study can be used for comparison with future studies to determine if the themes are universal or only applicable to the relationship building work at the one institution that was studied.

Focus on liaison-faculty relationships within research collaborations. Throughout the review of the literature, one word seemed to dominate the description of the liaison-faculty relationship: collaboration. However, often this term was used with no accompanying definition of what was meant by collaboration. Based on the information included in the articles, collaboration was being used loosely to describe a variety of interactions between liaisons and faculty that might not necessarily represent true collaboration depending on whose definition is used or whether the perspective was that of the librarian or the faculty member. It appears that most of the literature relies on the basic definition of collaboration that simply means to work together (Donham & Green, 2004), or the definition used by Moniz et al. (2014) that applies the term collaboration to both the "simple give-and-take of information to more complex teamwork" (p. 70). What

working together or complex teamwork actually mean is up for interpretation and introduces confusion into understanding the literature and research findings when it appears everyone is relying on different definitions to describe collaborative activities.

Schulte and Sherwill-Navarro (2009) noted this lack of a common definition as well and conducted a pilot study to try to determine how nursing faculty defined collaboration with librarians. What Schulte and Sherwill-Navarro (2009) found was that most nursing faculty defined collaboration within the confines of the traditional services that librarians had offered such as reference services and keeping faculty informed about services and resources. Very few defined 'collaboration' in a way that indicated a partnership within either instruction or research – two areas where librarians strive to develop collaborations (Schulte & Sherwill-Navarro, 2009). Pham and Tanner (2014) completed a more extensive process to determine how to define collaboration between faculty and librarians. The definition they created, based on collaboration literature from organizational behavior, education and research, knowledge management, and LIS, offers a unified definition, but focuses on the idea of support rather than achievement of a goal (Pham & Tanner, 2014).

Defining collaboration based on activities. It is fairly easy to segment the literature on liaison-faculty collaborations based on the activities the liaison is engaged in. Discussions of collaboration within three of the four main areas previously identified as a way to categorize the work of liaisons can be found in the literature: collaborative collection development, collaborative instruction, and collaborative research. How collaboration is viewed and used within these three areas are distinctly different. It is

also possible to see patterns of collaborative interest, as which area dominates the literature has changed over the years.

Collection development collaboration. When speaking of collection development work, collaboration has been used to describe faculty and liaisons working together to select resources for the collection. It could be argued that collaboration on building collections is the easiest area for liaisons to work with faculty in, given the faculty member's supposed interest in having access to a strong collection. However, the literature indicates that liaisons have struggled to get faculty to fully collaborate in the collection development process, mostly due to how time consuming the process is and disagreement over who has final say in decision making. Tucker, Bullian, and Torrence (2004) argue that it is the librarian who should take main responsibility for collection decisions, as faculty need to concentrate on their other responsibilities. However, models do exist where academic faculty make the collection development decisions with liaisons playing a secondary role (Ochola & Jones, 2001). The main point of collaboration with faculty on collection development is the fact that each member involved in the collaboration (faculty and librarian) have a role to play. In collection development, this collaboration highlights the faculty member's subject-knowledge and understanding of their own research needs, and the liaison's knowledge of resources, formats, access to information, and in some cases a matching knowledge of the subject area (Horava, 2005).

Instruction collaboration. The most common collaborative projects discussed in the liaison literature were instruction and teaching collaborations. This collaboration was described as everything from liaisons assisting faculty with designing research assignments for students, to librarians co-teaching departmental courses (Silver, 2014)

and the descriptions dominate the literature. Even articles whose titles indicated a more general discussion of librarian-faculty collaborations, focused the content of the article on instruction collaboration. One prime example of this was Hrycaj & Russo's (2007) article entitled "Reflections on Surveys of Faculty Attitudes Toward Collaboration with Librarians." The introduction to the article makes it clear that the focus is on instruction collaborations, but this article is just one of many with misleading titles that hint at a more expansive discussion of librarian-faculty collaborations.

This emphasis on collaborating with faculty through instruction may be grounded in the importance that librarians place on information literacy in higher education, combined with the struggle to be seen as teachers who should be in the classroom. Collaboration with faculty in order to gain access to students and entry into the classroom has been put forth as the best option. Manuel et al. (2005) put it this way:

> Librarians' continuing interest in faculty attitudes toward librarians and library instruction (LI) is understandable given that their opportunities for educating students are largely shaped by faculty attitudes, especially by faculty commitment to students' conducting library or information research and by their receptiveness to course-integrated LI. (p. 140)

This quote emphasizes the importance that librarians place on the power that faculty have to determine the librarian's ability to engage in a significant aspect of their jobs.

It is through the literature on liaison-faculty instruction collaboration that we see most of the references to factors that may impact a liaison's ability to form relationships with their faculty. Manuel et al. (2005) identified factors such as faculty viewing librarians as experts, faculty need to improve their own research skills (lack of knowledge), librarian perceived lack of knowledge, lack of communication, and librarian self-confidence as impacting faculty willingness to collaborate with liaisons in the

classroom. These factors were previously identified as ones that can impact liaisons' ability to form strong relationships with faculty. Collaboration through instruction was also suggested as a possible way to encourage further collaboration with faculty outside of instruction. Brown and Tucker (2013) suggested that liaisons could use successful teaching collaborations as a "springboard to becoming more involved with research endeavors" (p. 284). Díaz and Mandernach (2017) hinted at the same thing when they noted a faculty member's comment about liaisons not being used by faculty to support research, but that the faculty member now saw the liaison as generally capable due to their successful teaching collaboration.

Research collaboration. Creaser and Spezi (2014) noted a lack of coverage in the literature about liaisons developing research partnerships with faculty. Three years later, there is still a paucity of published research on liaison-faculty research collaborations, though suggestions for these types of collaborations abound. As with collaboration in collection development and instruction, the use of the term collaboration in reference to research could be described as confusing. Some have considered liaisons efforts to provide research consultations and literature searches to be forms of collaboration. But others have referred to liaisons serving on research terms and co-authoring as research collaboration. These options create a large continuum of possibilities for liaisons looking to collaborate with faculty on research. But the question remains: will faculty welcome liaison collaboration on faculty research?

Collaborating with faculty on their research endeavors may be considered the upper echelon of liaison-faculty collaboration. But whether or not faculty even consider liaison librarians as viable research collaborators in any capacity is still under debate.

What the literature does appear to indicate is that the same factors that impact liaisons' ability to form relationships with faculty, are also present in the liaison-faculty collaborative research relationship. One factor that has received some attention is that of liaison status. Creaser and Spezi (2014) suggest that librarians need to be on "equal footing" (p. 193) with faculty in order to be perceived as research collaborators. The authors equate faculty status for librarians with recognition that librarians have expertise to bring into a research collaboration (Creaser & Spezi, 2014).

This idea of equal footing or equal status returns the discussion to the importance of librarians having faculty status, with the same teaching and research requirements as academic faculty. Increased librarian research productivity has been put forth as a way to improve the possibility of faculty interest in collaborating with librarians on research. Lack of scholarly publication may be viewed by faculty as lack of intellectual interest, which could impact faculty's willingness to see a liaison librarian as a potential research collaborator (Biggs, 1981). Liaison librarians should publish more, especially in the discipline of the faculty rather than within LIS (Fonseca & Viator, 2009). But is this a factor that faculty weigh when considering research collaboration with liaison librarians? Do faculty even consider liaison librarians to be viable research collaborators?

The 2016 study by Tancheva et al. suggests that the answer to the second question is no. While faculty were definitely collaborating with others on their research, the librarian was seen as a supporter or facilitator of these collaborations, not a co-collaborator. One reason for this may be a lack of training in research methodology for liaison librarians. In order to collaborate fully on faculty research, faculty may expect liaisons to have research skills comparable to their own. But the literature indicates that

librarian preparation to do research is either minimal or completely absent. This lack of preparation is partly evidenced in content analysis studies of LIS literature that have found misuse of or lack of use of research methodology terms (Cibangu, 2013; VanScoy & Fontana, 2016). VanScoy & Fontana (2016) suggest this misuse or missing terminology may be indicative of a "lack of knowledge of research methods by graduates of LIS programs" (p. 99). This lack of skills can put the liaison at a disadvantage when attempting to collaborate with faculty on research. Foutch (2016) noted the "distinct learning curve" (p. 82) that she faced when working on a research project with faculty due to the lack of training she had in research methods or research interpretation. It is imperative that this possible barrier to liaison-faculty research collaboration be further explored.

Research on the factors that drive interest in research collaboration in general may offer some insights for liaisons interested in collaborating on faculty research. Hara et al. (2003) offer an emerging framework of scientific collaboration that has four distinct themes, a dual typology, and factors that affect each type of collaboration. This framework touches on a number of the factors identified as impacting liaison-faculty relationships, including status issues, expertise, trust, and communication (Hara et al., 2003). This emerging framework will be described further as part of the theoretical framework for this proposed study.

Theoretical Framework

Based on the review of the literature on the liaison-faculty relationship, and in recognition of the increasing interest in research collaboration within LIS, it has been determined that the scientific collaboration framework suggested by Hara et al. (2003)

offers a viable way to understand and describe the liaison-faculty relationship through the process of research collaboration. Though developed for scientific collaboration, the framework aligns well with the literature on liaison-faculty relationships, especially in the identification of factors that impact those relationships. The Hara et al. (2003) framework views collaboration as a "rite of passage" – with opportunities to collaborate with faculty on their research earned through demonstration of increasing knowledge in the faculty member's domain. While Hara et al. (2003) were referring to undergraduate students who needed to gain this knowledge as they moved up in their education to the graduate and then postdoctoral level, the same idea of needing to show subject area knowledge can be applied to liaison librarians.

The framework also identifies different types of collaboration that exist on "a continuum of connections" (Hara et al., 2003, p. 958), referring to both communication and teamwork within the collaboration process. The two ends of this continuum are identified as complementary and integrative. On the complementary end of the continuum, the collaboration is seen as divided into discrete units where each member of the collaboration team brings a specific type of expertise to the project that complements the expertise of the others (Hara et al., 2003). Collaborators do not work as closely together in a complementary collaboration, as each person is able to work on their specific part of the project. On the integrative end of the continuum, the collaborators work more closely together throughout the project, as they depend on each other for idea generation, analytical interpretation, and any other decision-making aspects of the research process (Hara et al., 2003). The integrative collaboration requires a deeper level of respect and trust between collaborators as they need to be able to work closely together

and cannot step away from the collaboration as those in a complementary collaboration can (Hara et al., 2003). Liaison librarians could easily fit into either type of collaboration, as their library research expertise would allow them to complete a literature search for a faculty member (complementary), or work on a systematic review with a faculty member (integrative).

The final aspect of the framework offered by Hara et al. (2003) are four factors that impact research collaboration: compatibility, connections, incentives, and socio-technical infrastructure. Compatibility refers to personal traits such as work style, writing style, research priority, management style, research approach, and personality (Hara et al., 2003). Connections refers to having shared interests and knowledge and a willingness to learn from each other (Hara et al., 2003). Incentives to collaborate can be external or internal and include everything from prestige to personal motivations (Hara et al., 2003). The idea of prestige may be distinctly related to liaisons' ability to convince faculty to collaborate with them on research, as Hara et al. (2003) indicate that researchers are less likely to collaborate with someone working in an area seen as less prestigious than their own, and that some subfields of science have higher or lower status than others. This could apply directly to librarians who work in an area (LIS) that tends to be seen as insulated (Cronin & Overfelt, 1994), having a lower status and having less of a research culture than other fields (Schrader et al., 2012). The final factor is socio-technical infrastructure, which refers to proximity and whether or not communication between possible collaborators is possible; and the impact that communication tools have on both of these issues (Hara et al., 2003). All four of these factors also exist on the

typology of collaboration continuum, with different aspects of each factor aligning with the different types of collaboration.

While the proposed framework developed by Hara et al. in 2003 does not appear to have been applied to understanding collaboration in LIS or within academic relationships, the framework is often mentioned and frequently cited in the literature in general, including LIS. It is believed that this framework will help provide a clear picture of the liaison-librarian relationship within the context of research collaboration. In addition to the Hara et al. framework, three additional emergent models were utilized to guide this study: Tancheva et al.'s (2016) expanded list of activities to describe faculty research, Schlak's (2016) suggestion of social capital as a relationship operative, and Díaz and Mandernach's (2017) best practices for relationship building. The expanded list of faculty research activities offered by Tancheva et al. were used as a guide to understand how involved liaison librarians are in different aspects of faculty research. Schlak's suggestion of social capital was used in the data analysis phase of the study, as social capital concepts were considered during the coding and thematic analysis processes. And finally, the best practices offered by Díaz and Mandernach were used as a guide for development of the survey and interview protocol for this study, as well as during the data analysis phase.

Summary

The information landscape is steadily changing, causing massive shifts in both the higher education and scholarly communication environments. These shifts have had a distinct impact on academic faculty, changing their primary role from teaching to research. Academic libraries, serving as a bridge between these two environments, have

been forced to respond to this changing landscape as well, in order to provide support for academic faculty and remain relevant within both environments. Maintaining relevancy means taking on new roles and responsibilities, with the bulk of the onus falling on liaison librarians. It is the liaison librarian position that has proven to be dynamic in nature, responding to the charge by taking on new roles while continuing to offer the traditional support still demanded by the university community. But the addition of these new roles, on top of a lack of consensus about what the work of liaisons entails, has led to a disjointed picture of who liaisons are and what they do. This disjointed picture has impacted the liaisons' ability to perform their work, especially in terms of developing relationships with faculty – a major goal of the liaison position. Liaisons' efforts to develop these relationships and perform in their new roles has often taken the form of collaboration with faculty, but the dynamics of these collaborative relationships have yet to be fully explored. What explorations do exist have been mostly anecdotal in nature. The few empirically-based studies either approach the topic quantitatively or qualitatively, with neither approach offering a full view of what collaborative liaison-faculty relationships truly entail. In addition, these studies are limited by poor research design. These factors, in combination, necessitated the development of a mixed methods approach to not only better understand the work of the liaison librarian, but how this work translates into the collaborative relationships that these librarians attempt to build with academic faculty in an increasingly complicated information and research driven environment.

CHAPTER 3:

METHODOLOGY

This chapter describes the research design followed for this study, and includes the design description and rationale, participant identification and selection process, data collection methods, data analysis methods and reporting, and ethical considerations.

Mixed Methods Research Design and Rationale for Design Selection

Two things the process of reviewing the literature on liaison-faculty relationships revealed was that not only was research that explored the relationship in an in-depth manner almost non-existent, but the quality of that research was questionable. Most of the information provided in the literature was based on opinion, accountings of personal experiences, and descriptions of process. Literature that attempted to apply empirical research methodology relied heavily on surveys for data collection. Many of the surveys were poorly designed and did not ask for or collect data that would have been pertinent to the topic under investigation. The analysis and interpretation found in these studies were also lacking, as poor study and survey design limited the analysis techniques that could be applied and the interpretations that could be made. Most of these studies report only basic descriptive statistics and findings such as the percentage of faculty who reported not needing the assistance of a liaison librarian. While knowing this information is useful, what would be more useful would be why faculty felt they did not need liaison

assistance. The majority of these studies would have benefited from a qualitative follow-up on their quantitative results to better understand the meaning behind the results.

Mixed methods research offers researchers several advantages, one of which is making up for the weaknesses that may be found in one research paradigm when compared to another (Johnson & Christensen, 2016). Johnson and Christensen (2016) use the analogy of having two fishing nets with holes in them in different locations. Using either net alone will mean catching fewer fish, but overlapping the two nets so that the holes in each are covered, will lead to catching more fish (Johnson & Christensen, 2016). This analogy highlights the value of combining quantitative and qualitative research for a stronger research design. Creswell and Plano Clark (2011) also emphasize that some research problems are just better addressed through mixed methods as they have a more multi-faceted nature. Some research problems need multiple types and sources of data in order to fully address the questions being asked, while others may initially be answered by one method - but to explain results, a different approach may be needed (Creswell & Plano Clark, 2011).

This study used an explanatory sequential design (QUAN → QUAL) that first collected quantitative data through administration of a survey; then, following analysis of the survey data, collected qualitative data through semi-structured interviews. The full study design is displayed in diagram form in Appendix A. The function of the explanatory sequential design is to allow the researcher to explain the results found in the quantitative phase of the study through collection and analysis of qualitative data (Creswell & Plano Clark, 2011). This study gave equal priority to both the quantitative

and qualitative strands,[3] as it was believed the qualitative data was equally as necessary as the quantitative data in addressing the research problem and understanding the relationship being explored. This study design had an interactive level of interaction, described as "a direct interaction…between the quantitative and qualitative strands of the study" (Creswell & Plano Clark, 2011, p. 65). The study had three points of interface indicating where the quantitative and qualitative strands mixed (Creswell & Plano Clark, 2011): the quantitative data analysis stage where the qualitative interview protocol was updated based on analysis of the survey data; the data interpretation stage where the collected qualitative data was used to further interpret the results of the quantitative strand; and in the participant selection process, as participants for the qualitative strand were recruited from those who completed the survey and indicated interest in participating in the second phase of the study.

Quantitative Research Questions and Hypotheses

As a mixed-methods design this study explored both quantitative and qualitative research questions. The quantitative research questions explored were:

Research question 1: Is there an association between organizational and individual factors and the type of work liaison librarians perform?

Research hypothesis (H_1): There is an association between organizational and individual factors and the type of work liaison librarians perform.

[3] The use of the term strand refers to the quantitative or qualitative component of a mixed study and is analogous to the term phase (Creswell, 2013). Strand is used here instead of phase to avoid any confusion with the multiphase design that is a distinctive mixed methods research approach that includes multiple, sequentially aligned quantitative and qualitative phases (Creswell & Plano Clark, 2011).

Research question 2*:* Is there an association between organizational and individual factors and liaison librarians' perception of their ability to build relationships with faculty?

Research hypothesis (H_1)*:* There is an association between organizational and individual factors and liaison librarian's perception of their ability to build relationships with faculty?

Research question 3: Is there an association between organizational and individual factors and liaison librarians' confidence in their ability to support faculty research?

Research hypothesis (H_1): There is an association between organizational and individual factors and liaison librarians' confidence in their ability to support faculty research.

The organizational factors explored in this study were the Carnegie classification of the liaison's institution and the status of librarians at the institution (e.g. tenure-track faculty, non-tenure track faculty, staff, etc.). The individual factors explored in this study were age, gender identity, race, ethnicity, time as a professional librarian, time in current liaison position, number of areas supported as a liaison, number of faculty supported as a liaison, discipline focus of supported areas, educational attainment, liaison's status at the institution, and the percent of the liaison's position devoted to liaison work. Four types of work performed by liaisons were identified for the study: collection development, instruction services, research support, and outreach.

Qualitative Research Questions

The qualitative research questions explored in this study were:

Research question 4*:* How do librarians and faculty perceive the librarian-faculty relationship?

Research question 5*:* What role do academic liaison librarians believe they play in supporting faculty research?

Research question 6*:* What role do faculty members believe academic liaison librarians play in supporting faculty research?

Research question 7*:* How do librarians view research collaborations between liaisons and faculty?

Research question 8*:* How do faculty view research collaborations between liaisons and faculty?

Study Strand Approaches

Each strand of this mixed methods study utilized an approach relevant to the strand type. For the quantitative strand, a survey was developed and administered to collect quantitative data. For the qualitative strand, the approach was multiple-case study.

Quantitative survey design and administration. In order to collect the necessary information on liaison librarians' current job responsibilities related to supporting faculty research, the prevalence of research collaboration between liaisons and the faculty they support, and the liaisons' perception of their ability to provide research support services and collaborate on faculty research, a survey instrument was designed and administered.

Survey question development. The initial set of survey questions identified for this study were developed based on examples of surveys found in the literature, as well as a review of liaison librarian job descriptions and liaison program descriptions that addressed faculty research support. Two surveys that addressed some of the components of this study were identified through review of the literature. The first survey was created by Arendt and Lotts (2012) as part of their study to look at faculty satisfaction with their liaisons and liaison satisfaction with their own performance. The gist of the questions used by Arendt and Lotts (2012) offered a good base for the creation of survey questions for this study and provided a fairly detailed list of liaison work that could be built upon. While Arendt and Lotts (2012) did introduce two questions that allowed liaisons to rate their level of success as a liaison and satisfaction with the relationship they had with their departments, the wording of the questions did not get at the individual liaison-faculty relationship level and were not modeled for the creation of this study's survey questions.

The second survey identified was the instrument created by Nero and Langley (2017) to collect data on the work of liaison librarians. Nero and Langley (2017) covered most of the basic questions that should be asked to create a detailed idea of the basic backgrounds of liaisons and similar questions were included in the survey created for this study. The survey was very similar to the one constructed by Arendt and Lotts, though additional questions were included in Nero and Langley's instrument (2017), and the question wording was not comparable. While they did touch on roles and responsibilities of liaisons, including two questions related to new roles identified in the literature (scholarly communication and OA) and one question about quality of relationships (Nero

& Langley, 2017), the wording of these questions did not align with the purpose of this study and were not modeled.

The remainder of the survey questions were developed from reviews of currently open liaison librarian position descriptions and descriptions of library liaison programs that detailed the current goals of liaisons in relation to faculty relationships and collaboration. A collection of 50 academic library positions that included liaison responsibilities were identified through the American Library Association (ALA) JobLIST site using the JobLIST search feature to search for the term "liaison" within job positions classified as part of the "Academic/Research (College University)" industry. In addition to the position descriptions, twenty descriptions of academic library liaison programs were identified through a general Internet search. These descriptions were used in conjunction with the descriptions included in the most recent ARL SPEC Kit, "Evolution of Library Liaisons," to gain more in-depth information about the job expectations of liaisons, especially in terms of relationship building and collaborating. Review of these position and program descriptions offered an indication of current skills and expectations for liaison librarians, which assisted in the development of survey questions that reflected these current roles.

Survey design. The overall creation of the survey for this study followed standardized survey and scale development as outlined by DeVellis (2012) and Fowler (2014). While it was not the intention of this study to create a scale to measure any specific construct, most of the steps outlined by DeVellis (2012) for creating sound scales also apply to creating sound surveys, including the need to include expert review and pre-testing before survey administration. In addition, the survey included two sections that

relied on rating scales to determine liaisons' self-ratings of the relationships formed with faculty and their ability to provide research support and collaborate on faculty research. Relying on these types of questions allowed for the analysis of some validity and reliability aspects of the survey instrument.

For survey development, a large set of questions were created for initial review and pared down through a process of expert review, cognitive interviews, and initial piloting to determine the final make-up of the survey (DeVellis, 2012). The first draft of the survey consisted of four sections with a total of 76 questions. Section I included 20 demographic and background questions focused on the liaison, their education, their career, and their current position. Section II included 10 questions that focused on liaison's specific work activities within four areas: collection development, instruction services, research support, and outreach. Section III asked liaisons to rate 23 statements related to their perception of the relationships they had built with the faculty in their assigned liaison areas using a five-point scale that ranged from "Strongly disagree" to "Strongly agree." Section IV asked liaisons to rate 23 statements related to their perception of their confidence to support different aspects of faculty research using a four-point scale ranging from "Not at all confident" to "Very confident."

Expert review. The first draft of the survey was sent to an expert in survey design, an LIS faculty member, and five current or former academic liaison librarians for initial review. The survey design expert was asked to review both the structure and wording of the survey. The LIS faculty member was asked to offer their thoughts on both the structure and content of the survey. The five academic liaison librarians were asked to review the content of the survey. To aid in the review process, the five academic liaison

librarians were provided with a standardized matrix that asked them to rate the survey question wording based on clarity and grammar, relevance to the topic, ease of response (easy, moderate, or hard to answer), and fairness/bias of the wording. The librarians were also invited to provide open comments and suggestions for each question and the survey directions. Each reviewer provided feedback within two weeks. All feedback was reviewed and changes were made to the survey to reflect many of the suggestions.

Cognitive interviews. Additional review of the first draft of the survey consisted of two cognitive interviews completed with current academic liaison librarians local to the researcher. Cognitive interviewing is a technique used in survey design to evaluate whether the intended audience for a survey "understand, mentally process, and respond" to a survey's directions and questions as expected, and help to identify aspects of the survey that do not work as intended (Willis, 2005, p. 3). During the cognitive interviews, participants were asked to both read the survey aloud and respond to the questions as if they were completing the survey, a variation of the "think-aloud" process sometimes applied in cognitive interviewing – as participants read through the survey and answered the questions, they were also encouraged to vocalize their thoughts about what they were reading and how they were answering (Willis, 2005). Throughout the interviews, the researcher noted the participants' body language, facial expressions, and changes in vocal inflections, and used these cues as indications of times when probing questions might need to be asked. Both comprehension and general probes (Willis, 2005) were used to test the overall language of the survey and whether participants found questions easy or difficult to answer.

Utilizing the feedback received from the expert review and cognitive interviews, changes were made to the survey and a second draft was developed. While the intent of the review was to reduce the number of questions included in the survey, and the expert feedback did result in the removal of some questions, the survey length remained at 76 questions as the feedback from the liaison librarians lead to the inclusion of new questions. Section I increased from 20 to 21 questions; Section II remained at 10 questions; Section III went from 23 to 18 statements and added an open-comment question; and Section IV increased from 23 to 27 statements. The second draft of the survey was transferred into Qualtrics in preparation for piloting.

Survey piloting. Rather than sending the survey out widely for piloting, a call for volunteers was sent to six library-related listservs most likely to be monitored by academic liaison librarians: collib-1, lirt-l, ili-l, nmrt-l, rusa-l, and uls-l. Volunteers were invited to take the survey and also participate in a short interview via Zoom to share their feedback. Twenty-four librarians indicated interest in taking the survey and six also agreed to participate in short Zoom interviews following completion of the survey. The survey for the pilot was shared with the twenty-four volunteers and the five current and former liaisons who had provided expert review of the first draft of the survey. The pilot survey allowed participants to include open comments at the end of each section, indicating any issues or suggestions for the directions or questions in that section. The six volunteers who participated in Zoom interviews were asked to provide additional feedback on the survey's directions and questions.

Utilizing the feedback collected through the pilot and the Zoom interviews, a final version of the survey (Appendix B) was created in Qualtrics. The final survey consisted

of 81 questions in four sections: Section I included 22 questions focused on demographics and background information; Section II included eight questions focused on liaisons' work activities; Section II included 17 statements related to the liaisons' perceptions of their relationships with faculty and an open comments question; and Section IV included 33 statements related to the liaisons' perceptions of their confidence in supporting different aspects of faculty research and two open-ended questions.

Multiple case study design. The qualitative strand of this study utilized a multiple-case study design. The exact definition of case study research tends to vary depending on the perspective of the researcher, but a general definition offered by Creswell (2013) that encompasses the purpose of this proposed study is:

> Case study research is a qualitative approach in which the investigator explores a real-life, contemporary bounded system (a case) or multiple-bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information…and reports a case description and case themes. (p. 97)

The idea of the bounded system within this definition, and echoed in other case study research manuals, represents the boundaries placed around a case to help identify what is and is not a case within the research study (Johnson & Christensen, 2016). For the purpose of this study, cases were bound by environment (higher education academic institutions), roles within that environment (academic faculty or liaison librarian), and activity (engagement in research collaboration).

Case studies can be intrinsic or instrumental, depending on the purpose of the study. With intrinsic case studies, interest is in understanding a unique or specific case (Creswell, 2013; Johnson & Christensen, 2016). Instrumental case studies are interested in understanding something more general than a specific case, such as a broader issue or problem (Creswell, 2013; Johnson & Christensen, 2016). A third type of case study, the

multisite or multiple-case study design, like the instrumental case, is interested in a broader issue but looks at that issue through multiple cases (Creswell, 2013). This study utilized the multiple-case study design to look at the liaison librarian-faculty relationship in the higher education setting. The cases for this study consisted of the liaison librarian-faculty pair at different types of higher education academic institutions. While the liaison-librarian and faculty member in each case existed at a particular institution, the institution was not the focus of the cases for this study. Rather, the pairing of the liaison librarian and the faculty member constituted the actual case at a variety of institution types.

Yin (2009) suggests that multiple-case studies may be preferred to the single case study, partly for the improved analysis opportunities they provide. Utilization of the multiple-case study design allows for both within-case analysis, where the individual case is detailed, and cross-case analysis, where themes found across the cases can be detailed (Creswell, 2013). And, while generalization of study results is not the goal of this study (or most qualitative studies), the use of a multiple-case design aids in the possibility of detailing more generalizable results (Creswell, 2013; Johnson & Christensen, 2016).

Participant Recruitment and Selection

Because this was a mixed methods study, a participant recruitment design that supported the study type was followed. The overall study design used a nested sequential sampling design where participants for the second phase of the study were recruited and selected from those who participated in the first phase of the study (Johnson & Christensen, 2016). For this study, the nested sample was created through the survey instrument used to collect data in the quantitative phase of the study, which included an

option at the end of the survey for interested participants to self-identify for the second phase of the study. Those who agreed were asked to provide their name and contact information for follow-up.

Quantitative phase sampling design. Purposeful sampling was employed for the quantitative phase of the study, as the study was specifically interested in librarians who had liaison responsibilities as part of their jobs. Purposeful sampling is the process of intentionally recruiting participants who align with the key phenomenon or concept being studied (Creswell & Plano Clark, 2011). This study combined three approaches to recruit liaison librarians for the quantitative phase. The first approach was a modification of the recruitment process used by Nero and Langley (2017), who compiled a list of liaison librarians from ARL libraries, Oberlin Group libraries, and libraries at Morrill Act created land-grant institutions. This study compiled a list of liaison librarians based on information available on library websites for all academic institutions based on the Carnegie Basic Classification System. Institutions classified as Doctoral Universities, Master's Colleges and Universities, Baccalaureate Colleges, Baccalaureate/Associate's Colleges, Associate's Colleges, and Special Focus under the Carnegie system (a total of 4,125 institutions) were considered for inclusion in the study (Trustees of Indiana University, 2017). This study expanded on the list of institutions used by Nero and Langley by including smaller community colleges that are often not included in studies of liaison librarian work, though many do employ liaison librarians. Of the 4,125 identified institutions, 1,122 were determined to have liaison librarians, leading to a list of 10,501 possible participants. Only librarians whose work could clearly be identified as including

liaison responsibilities, from either their job title or available description of their work, were included in the created contact list.

The second approach to recruiting study participants relied on library listservs that cater to librarians who perform liaison work. A general call for survey participants was shared on the following listservs:

- COLLIB-L: Listserv for ACRL's College Libraries Section that facilitates communication for those interested in topics related to college librarians
- ILI-L: ALA listserv that facilitates communication for those interested in instruction and information literacy
- LIRT-L: Listserv for members of the Library Instruction Round Table, who share an interest in information literacy and instruction topics in libraries
- LITA-L: Listserv for those interested in discussions of library technology
- NMRT-L: Listserv for those interested in library issues related to those new to field of librarianship
- RUSA-L: Listserv for those interested in reference and user services within libraries.
- ULS-L: Listserv for those interested in issues related to university libraries.

The final method of recruitment for the survey was social media. A call for participants and a link to a study information page created on my University of Denver Portfolio site was shared on my personal Facebook and Twitter pages. As a former librarian, a number of my Facebook friends and Twitter followers are librarians with liaison responsibilities. While many were likely identified through the previous recruitment means, some may not have been. Posting the survey information on social

media hopefully caught any liaisons not found through the first two processes, while also creating a quick and easy way for the survey call to be distributed widely. All survey participants had the opportunity to opt into a drawing for one of five $25 Amazon gift cards conducted at the closing of the survey collection period. Entry into the drawing was used as incentive for participating in the study but was not automatic, as the survey collection process was anonymous.

Qualitative phase sampling design. As previously mentioned, a nested design was used to identify participants for the second phase of this study from those who participated in the first phase. Any respondent who expressed interest in participating in the second phase of the study by including their name and e-mail address in a separate survey was contacted by the researcher to determine if they were still interested in participating and if they met the additional requirement of being able to recommend a faculty member from one of the departments they support whom the liaison had collaborated with on research and who might be interested in also participating in the study. Of the survey participants, 343 indicated interest in participating in the second phase of the study. Of this 343, I was able to identify 23 who felt they could identify a faculty member for the study. Because of the level of interest, I was able to select ten pairs whose participants were both available to participate in the study, represented a variety of institution types, and worked in different disciplinary areas. This final selection was a form of maximum variation sampling that was done with the intent of gaining a broader view of the liaison-faculty relationship based on institution type and/or research discipline, while also offering the opportunity to make comparisons or look for themes across and between cases based on institution type and/or research discipline

(Johnson & Christensen, 2016). During the data analysis phase, it was determined that three of the pairs did not fit the purpose of the study and their data was removed, leaving seven liaison-faculty pairs.

Data Collection

Quantitative data collection. The data collection technique for the quantitative strand of this study was an online survey administered through the Qualtrics® survey software provided by the University of Denver. An e-mail link to the survey was included in the e-mails sent to potential participants, posted on the identified listservs, and included in the social media posts for the study. The survey opened on October 10, 2017 and remained open for one month. The individual e-mail invitations were sent to participants over the space of two days beginning on October 10th. The open invitation to participate was posted to the identified listservs one week later on October 17th. And the social media invitations were posted a week later on October 25th and reminder e-mails were sent to the identified liaisons on November 7th, four days before the survey closed.

Qualitative data collection. For the qualitative strand, two forms of data collection were employed. While Yin (2009) recommends using six sources of evidence (documentation, archival records, interviews, direct observations, participant-observations, and physical artifacts) only two of these sources were relevant to this study: interviews and documentation. Yin (2009) sees interviews as "an essential source of case study evidence because most case studies are about human affairs or behavioral events" (p. 108). Semi-structured interviews were used as the main form of data collection for the case studies. The semi-structured interview included a mixture of both structured questions – those that allow for the collection of specific information from each

participant, and unstructured questions, which were more flexible in wording (Merriam, 1998). This style of interview - also called the interview guide approach (Johnson & Christensen, 2016) – utilized an interview protocol of questions and topics to be discussed, but was flexible enough to allow me to ask the questions in any order and alter word choice as needed (Merriam, 1998).

Semi-structured interviews. The interview protocols for this study were developed based on review of the literature, the research questions being explored, and the results of the quantitative data analysis. The developed protocols, one for liaison librarians (Appendix C) and one for faculty (Appendix D), were piloted with a liaison librarian and three faculty members to ascertain the ability of the questions to address the purpose of the study and to determine if the researcher's interview style and approach would work for the study. Based on availability, two interviews were planned for each participant: an initial interview conducted in-person and a follow-up interview conducted via Zoom video conferencing software. Interviews were conducted with each member of the pair individually rather than together for three reasons: 1) participants would be asked slightly different questions based on their status, which would have increased interview length; 2) finding a suitable time where both members were available proved to be difficult; and 3) interviewing participants separately allowed for a comparison of their responses to different questions – offering insights into the nature of the participants' relationships.

Due to travel constraints, four of the initial interviews were conducted via Zoom rather than in-person. Follow-up interviews were not conducted with two faculty members due to unavailability. Initial interviews lasted between 42 and 95 minutes.

Follow-up interviews lasted between 10 and 45 minutes. Each interview was audio recorded and then transcribed by the researcher. Transcribed interviews were shared with the participants as a form of member checking. This validation technique allowed participants to clarify or expand on their thoughts, ensuring they had the chance to express themselves fully (Johnson & Christensen, 2016).

Documents for analysis. The documents sought for use in this study included the curriculum vitae of each participant; mission statements: institutional, faculty departmental, and library; liaisons' job descriptions; faculty handbooks; strategic planning documents: institutional, faculty departmental, and library; liaison and faculty performance and/or merit documents; university documents related to tenure, merit, and promotion (if not included in the faculty handbook); and samples of collaborative scholarship (papers, presentations, posters, etc.). The collaborative scholarship examples were particularly useful in developing additional questions for the liaison-faculty pair, as they provided specific projects for the participants to focus on in the interviews.

Data Analysis

Quantitative strand. Data analysis for the quantitative strand consisted of analysis of the collected survey data. The data collected through Qualtrics® was downloaded to IBM® SPSS® Statistics V22, cleaned and then analyzed. Basic descriptive statistics were calculated, then inferential statistical analysis was completed. Based on the type of data that the survey collected, quantitative data analysis techniques concentrated on determining association. For the categorical variables from the survey (e.g. type of institution, disciplines of departments, librarian status), contingency tables were created and chi-square tests were conducted to determine if associations existed

between the variables (Johnson & Christensen, 2016). For the questions that utilized a Likert-scale response, Spearman's rho was conducted to determine if associations existed between individual liaison factors and the different ratings liaisons assigned to their perception of their liaison relationships and their confidence to support faculty research. The Spearman's rho assessment is used to determine associations between ordinal variables (Cohen, Manion, & Morrison, 2007). The results of the data analysis were used to help develop the interview protocol for the qualitative strand of the study. Findings of both significant and non-significant associations were used to determine which topics should be further explored in the interviews.

Qualitative strand. For the qualitative data, analysis was conducted for both interview data and collected documents, with the goal of creating a "detailed description of the case and its setting" (Creswell, 2013, p. 199). Each interview was transcribed individually, to take advantage of the benefits of self-transcription, including immersion in the data (Merriam & Tisdell, 2016). Once transcribed, I implement a four-stage process of analyzing the interview data. The first stage was an initial reading of each interview in the paired case (liaison and faculty member). During this first reading I made initial notes and recorded ideas about the data as it applied to the research questions. For initial interviews, I also identified additional questions to ask participants during follow-up interviews. During a second reading of the data, initial coding was done to describe meaningful pieces of information in each transcript and a master code list was started (Johnson & Christensen, 2016). During this second reading I also identified information that aligned with *a priori* codes identified from the literature, as well as other codes that emerged based on the data, including *in vivo* codes that came

directly from the words of the participants (Creswell, 2013). A third reading of the transcripts and the identified codes was then completed in order to look for codes that overlapped and to determine which codes would be the final codes used in the study. Once the coding was completed, a fourth reading was done to thematically analyze the transcripts and codes for each liaison-faculty pair, comparing codes and determining themes that applied to each paired case (Johnson & Christensen, 2016).

Document analysis of the collected documents was also done for information relevant to each paired case. This analysis consisted of identifying information in the documents related to factors previously identified as relevant to the liaison-faculty relationship. These factors represented environmental influences that helped to describe the context of the case. The identified codes and themes were used in conjunction with the analyzed documents to describe each case and the case context – within-case analysis (Creswell, 2013; Johnson & Christensen, 2016; Merriam, 1998).

As a multiple-case design, additional analysis was done to determine if themes crossed between the cases. This cross-case analysis allowed me to look for patterns or themes that ran through multiple cases, or differences that existed between the cases (Johnson & Christensen, 2016). With the information from the document analysis, I was also able to determine what differences may have been due to the context of each case and which differences were intrinsic to each case. The document analysis also served as a triangulation tool for the study, allowing me to use data from the documents to support codes or themes found in the interviews (Creswell, 2013). The triangulation of the data also applied to the data collected during the quantitative strand of the study.

Mixed-methods integration and data analysis. As a mixed-methods study, data analysis included the integration of findings from the quantitative strand of the study with findings from the qualitative strand. As an explanatory design, the goal of mixed-methods data analysis was to connect the data from each strand in order to explain the overall results of the study (Creswell & Plano Clark, 2011). The process of triangulation, or corroborating findings from one part of the study with data or results from other parts of the study, was applied at this point (Creswell, 2013).

Presentation of Results

The final write-up of this mixed methods study includes reporting of the quantitative data analysis, findings, and interpretation; a descriptive write-up of the multiple-case study results, and a write up detailing the final analysis based on the integration of the two study strands. The quantitative analysis findings are presented through descriptive text, charts as needed, and a discussion of significant results. The multiple-case study write-up includes both descriptions of each individual case, and a discussion of themes or patterns found across the cases. The final discussion of the results details the findings from the mixed-methods perspective, integrating the findings from both strands into meta-inferences that provide a cohesive view of the entire study (Johnson & Christensen, 2016).

Researcher Positionality

Due to the nature of the study, it is important that I acknowledge the role that I played within this study, particularly the potential biases that I brought to the study. Peshkin (1988) suggested that regardless of the approach taken (qualitative or quantitative), researchers "should systematically identify their subjectivity throughout the

course of their research" (p. 17). It was important for me to practice reflexivity throughout the study, and acknowledge how my own experiences, history, and potential biases could impact the study (Creswell, 2013). My connection to the LIS field placed me in the interesting position of being an insider – a former liaison librarian who had performed the same work as the liaisons who were recruited to participate in my study. My ability to recruit participants for my study, how I spoke with them during interviews, and even the comfort level that I felt, was impacted by my previous position as a liaison librarian, my status as a PhD student, and my occasional role as an adjunct faculty member. These multiple perspectives can be likened to what Peshkin (1988) refers to as "subjective I's" (p. 18), or the multiple identities that tend to emerge in different environments and situations. It is important that I not only recognized these different "I's," but that I took note of how I felt when these "I's" were exposed and the impact that these different perspectives had on the entirety of my study (Peshkin, 1988).

One method that I employed to ensure that I was cognizant of my subjectivity was journaling. A research journal was kept throughout the duration of the project and used to record my thoughts and actions related to the study. This method is similar to the one suggested by Peshkin (1988) who used index cards to record his feelings, which he equated with indications that his subjectivity had been aroused. The research journal serves as a reflexive tool for the researcher, particularly in qualitative research where the researcher is considered to be an instrument of the study (Creswell, 2013; Janesick, 1998). I was able to use the journal to record not only the process of completing my study, but also my thoughts about my approach to each step of the study, my interactions with participants, and, similar to Peshkin, my feelings about the study.

Keeping a journal and specifically thinking about my own position within the study allowed me to have an "enhanced awareness" of my subjectivity, and thus avoid having that subjectivity negatively impact the study design and data interpretation (Peshkin, 1988, p. 20). This was especially important during the initial interviews conducted with liaison librarians. After each interview I reviewed my handwritten notes and recorded my thoughts about the interview experience itself. Later when I reviewed the interview transcripts and compared them to my notes, I realized that at times I had not followed up on a participant's response because I had *assumed* I understood their experience due to having a similar experience when I was a liaison. The journal allowed me to realize this oversight and I asked the participants for more information and clarification during follow up interviews.

Within the journal I also practiced taking an altered point of view, writing up my feelings about the case study interviews from the perspective of the interviewee (Janesick, 1998). This was particularly useful when a participant shared an experience that I found familiar, as when Rose shared her feelings about others being given the right to make changes to the project she had developed. While I had a similar experience as a liaison, looking at the situation from Rose's perspective rather than my own helped me to avoid overly interpreting the data based on my own experiences. This method helped to remind me that my perspective was not necessarily the one that should be focused on within my study, and helped me to refocus my data analysis and interpretation on the actual participants. Remaining aware of my subjectivity and possible biases was important for my ability to create an ethically sound study.

Ethical Considerations

This study received approval from the University of Denver Institutional Review Board (IRB) before data collection began. Due to the nature of the topic, all efforts were made to both protect the anonymity and confidentiality of research participants, and also reduce or eliminate any possibility of harm from participating in this study.

Survey ethical considerations. The survey utilized in this study was set up to collect data anonymously. The survey software itself (Qualtrics) was set to not track IP addresses or otherwise identify participants. While the survey was used to recruit potential participants for the qualitative strand of the study, a separate survey form that was not connected to the completed survey was used to collect names and contact e-mails. This process insured that the survey respondents' identities remained anonymous. The contact information of those who expressed interest in the second phase of the study was downloaded as an excel file and password protected to maintain and protect the privacy of the potential participants.

Case study ethical considerations. Because the case study relied on pairs of participants to investigate the liaison-faculty relationship, confidentiality of the participants was a concern. Due to the study design, it was not possible to keep participants in each case study pair from knowing the identity of the other person participating in the study. As liaison librarians were asked to identify the faculty member for the case studies, it was not possible to keep the identity of the faculty member confidential from the liaison, or the identity of the liaison from the faculty member.

While it was not anticipated that negative information about either participant in the liaison-faculty pairing would be reported, any discussion about relationships had the

potential to reveal information that could be interpreted as hurtful to the other person. Multiple steps in the presentation of the results were taken to counteract this possibility:

- Any information that might make identifying institutions easy was not included in the reporting of the study findings. For example, while the Carnegie classification of the institution shared by the pair is reported, the geographic location of the institution is not. The description of the institutions is kept at a minimum, only reporting the information relevant to the topic being studied.
- Participant selected pseudonyms were used rather than researcher assigned pseudonyms. This allowed participants to select a name that they were comfortable with and avoided the possibility of the researcher selecting a name that might offend a participant (Ogden, 2008). Allowing the participants to select their own pseudonym also insures that the liaison pair will be able to identify their own case, but others outside of the study should not be able to determine the identity of the pair (Ogden, 2008).
- A final layer of member checking was used to ensure that participants were comfortable with how they were portrayed in the case. All interview transcripts were shared with participants, who were allowed to make changes or additions to the information included. Only three participants asked for changes to their transcripts, with most of the changes focused on clarifying or correcting information. One participant did ask that the location of a previous workplace be generalized within the transcript and study, and this change was made. In addition, the final case for each pair was shared with the pair members. Participants had the option to request changes to any information, particularly

direct quotes, included in their cases. While this process could have impacted the research findings, none of the requested changes to the transcripts were significant, and no participant requested major changes to how they were portrayed in their case.

As the participants in each case knew who the other person is in the liaison-faculty pair, the researcher endeavored to present all information in a format that was both true to the words of the participants and respectful of their feelings.

CHAPTER 4:

QUANTITATIVE RESULTS

The purpose of the quantitative analysis completed in this study was four-fold: to create a profile of the work that academic liaison librarians are engaged in as part of their positions; to determine if associations exist between organizational and individual factors and the type of work performed; to determine if associations exist between organizational and individual factors and liaisons' perceptions of their relationships with faculty and their confidence in supporting faculty research activities; and to identify relevant factors for exploration in the qualitative strand of the study. This chapter presents the results of the quantitative analysis of the survey data in four sections. The first section presents the demographic and work profile of the survey respondents. The second section presents the results of the chi-square tests of association for organizational and individual factors and the type of work performed by survey respondents. The third section presents the results of the Spearman rho analyses and chi-square tests of association for organizational and individual factors and respondents' perceptions of their relationships with faculty. And the fourth section presents the results of the Spearman rho analyses and chi-square tests of association for organizational and individual factors and respondents' confidence in supporting faculty research activities. The chapter concludes with a summary of the quantitative findings, including a discussion of the connection between the quantitative results and the interview protocol used in the qualitative strand of the study. IBM SPSS

statistical software version 22.0 was used to clean the data, run all descriptive statistics, and run all Spearman rho analyses and chi-square tests of association.

Section I: Respondents' Demographics and Work Profile

This section reports on the basic demographic, education, and work-related characteristics of the survey respondents. While 2,857 surveys were submitted, a review of the data revealed 207 surveys that were incomplete and missing more than 60% of the data. These entries were removed during the data cleaning process, leaving a total of 2,650 usable surveys. This number represents approximately 25% of the liaisons invited to participate in the survey. Descriptive statistics for the survey are presented in four tables: demographic characteristics (Table 4.1), education-related characteristics (Table 4.2), institution and general position characteristics (Table 4.3), and liaison work-related characteristics (Table 4.4).

Respondent characteristics' overview. The survey population closely mirrored the most recent ALA demographics reported by Rosa and Henke (2017) (see comparison chart in Appendix E, Table E.2). Most respondents identified as female (73.4%), White (83.7%), and non-Hispanic (95.4%), with an average age of 45 (Table 4.1). Only 2.0% of respondents did not have an MLS, MLIS, or equivalent degree, and over 50% held an additional post-graduate degree, with most indicating that their degrees were related to the liaison areas they support (Table 4.2). Nearly half of respondents had been working as a librarian between one and 10 years, and over 50% had been in their current positions between one and 10 years (Table 4.3). Nearly half of respondents worked at doctoral-granting institutions and more than half worked at institutions where librarians had faculty status and they themselves held faculty status (Table 4.3).

Liaison work responsibilities. Within their positions, half of respondents had their liaison responsibilities included in their job descriptions, but more than half also indicated that less than 50% of their positions were devoted to liaison responsibilities (Table 4.4). Most respondents (79.9%) supported between one and five liaison areas, and most (38.7%) reported having more than 50 faculty members in their liaison areas (Table 4.4). And while many respondents supported areas across multiple disciplines, nearly half (43.8%) supported areas in the Arts & Humanities (Table 4.4).

Table 4.1. *Survey Respondents' Demographic Characteristics*

Characteristic	*n*	*%*
Gender Identity		
Female	1946	73.4
Male	635	24.0
Other Identity	69	3.0
Racial Identity		
White	2219	83.7
Black or African American	140	5.3
American Indian or Alaska Native	8	0.3
Asian	80	3.0
Native Hawaiian or Pacific Islander	4	0.2
Multi-Racial	72	2.7
Other	45	1.7
Prefer Not to Answer	66	2.5
Missing	16	0.6
Identify as Hispanic or Latino?		
Yes	123	4.6
No	2455	92.6
Missing	72	2.72
Age		
Under 25	16	0.6
25 to 34	596	22.5
35 to 44	777	29.3
45 to 54	565	21.3
55 to 64	505	19.1
65 to 74	131	4.9
75 plus	3	0.1
Missing	57	2.2

Note. $N = 2650$

Table 4.2. *Survey Respondents' Education Characteristics*

Characteristic	*n*	*%*
Hold MLS, MLIS, or Equivalent		
Yes	2597	98.0
No	53	2.0
Hold Additional Post-Graduate Degree (*N* = 2597)		
Yes	1245	47.9
In Progress	147	5.7
No	1203	46.3
No Response	2	0.1
When Additional Post-Graduate Degree Earned (*N* = 1416)		
Before MLS	715	50.5
Simultaneous w/ MLS	101	7.1
After MLS	600	42.4
Types of Additional Post-Graduate Degrees Held*		
Master's	1116	
Doctorate	278	
Certificates	91	
Degrees related to liaison areas		
Undergraduate		
Yes	1437	54.2
No	1211	45.7
No Response	2	0.1
Additional Post-Grad Degree (*N* =1392)		
Yes	950	68.3
No	435	31.3
No Answer	7	0.5
No MLS, Post-Grad Degree (*N* = 53)		
Yes	47	88.7
No	6	11.3

Notes: Unless otherwise noted, *N* = 2650; *Respondents indicated holding more than one additional post-graduate degree - No totals or percentages are presented.

Table 4.3. *Survey Respondents' Institutional and General Position Characteristics*

Characteristic	*N*	*%*
Institution Type[4]		
Doctoral Institutions	1244	46.9
Master's Colleges and Universities	798	30.1
Baccalaureate Colleges	295	11.1
Baccalaureate/Associate's Colleges	49	1.8
Associate's Colleges	176	6.6
Special Focus Institutions	64	2.4
Non-Carnegie/Non-US Institution	9	0.3
No Answer	15	0.6
Librarian Status at Institution		
Faculty, Tenure Track	1085	40.9
Faculty, Non-Tenure Track	495	18.7
Academic/Professional	416	15.7
Staff	357	13.5
Other	88	3.3
Multiple Possible	206	7.8
No Answer	3	.1
Respondents' Status at Institution		
Faculty Tenured	746	28.2
Faculty, Tenure Track	373	14.1
Faculty, Non-Tenure Track	580	21.9
Academic/Professional	454	17.1
Staff	363	13.7
Other	132	5.0
No response	2	0.1
Time as a Professional Librarian		
Less than one year	69	2.6
1-5 years	639	24.1
6-10 years	585	22.1
11-15 years	419	15.8
16-20 years	301	11.4
21-25 years	217	8.2
26-30 years	164	6.2
More than 30 years	253	9.5
No answer	3	0.1
Time in Current Position		
Less than one year	267	10.1
1-5 years	1171	44.2
6-10 years	479	18.1
11-15 years	291	11.0
16-20 years	232	8.8
21-25 years	98	3.7
26-30 years	66	2.5
More than 30 years	44	1.7
No response	2	0.1

Table 4.4. *Survey Respondents' Liaison Position Characteristics*

Characteristic	*n*	%
Percentage of Current Position Devoted to Liaison Work		
75% or more	376	14.2
50-74%	603	22.8
25-49%	786	29.7
Less than 25%	857	32.3
No response	28	1.1
When Liaison Responsibilities Assigned		
Liaison responsibilities included in job description	1333	50.3
Liaison responsibilities assigned after hired	490	18.5
Some liaison responsibilities included in job description AND some responsibilities assigned after hired	466	17.6
Liaison responsibilities added after hired	358	13.5
No response	3	0.1
Number of Liaison Areas Supported		
1-5	2117	79.9
6-10	425	16.0
More than 10	75	2.8
No Answer	33	1.2
Number of Faculty in Liaison Areas		
0 (no faculty in my liaison areas)	4	0.2
1 to 10	197	7.4
11 to 20	365	13.8
21-30	435	16.4
31-40	325	12.3
41-50	294	11.1
More than 50	1026	38.7
No response	4	0.2
Discipline Focus of Liaison Areas*		
Arts & Humanities	1160	43.8
Social Sciences	1052	39.7
STEM	699	26.4
Professional Programs	869	32.8
Other Academic Areas	249	9.4
Non-Academic Areas	250	9.4

* Percentage more than 100% as participants able to select more than one discipline area

Additional position characteristics. Respondents were also asked about two additional characteristics of their positions: methods for communicating with faculty and methods for staying up-to-date in their liaison areas. For communication, respondents

[4] Individual Carnegie classifications were grouped here and for data analysis. Participant breakdown by individual category is reported in Appendix E, Table E.1.

were asked to identify all of the methods they utilized from a list of 15 items (Table 4.5). Three methods were selected by more than half of respondents: *sending direct e-mails to individual faculty* (92.0%), *set up scheduled (one-on-one) meetings (in-person or online)* (74.0%), and *send direct e-mails to faculty as a group* (71.9%). For staying up-to-date, respondents were asked to select from a list of 12 items (Table 4.6) and could consider all positions they have held as a liaison when selecting activities. Only two activities were identified by more than half of the respondents: *reviewed the professional literature in my liaison area(s)* (68.7%) and *attended programs or meetings related to my liaison area(s) at professional library association conferences* (54.8%). All other methods of staying up-to-date were identified by less than 50% of respondents.

Table 4.5. *Methods Used to Communicate with Faculty in Liaison Areas*

Method of Communication	***N***	**%**
Send direct e-mails to individual faculty	2439	92.0%
Set up scheduled (one-on-one) meetings (in-person or online)	1962	74.0%
Send direct emails to faculty as a group	1905	71.9%
Attend liaison area departmental meetings	1310	49.4%
Call faculty on telephone	1283	48.4%
Faculty drop by liaison's office (unscheduled)	1144	43.2%
Send email distributed through a department chair	1045	39.4%
Send email distributed through other department contact	981	37.0%
Drop by department(s) (unscheduled)	770	29.1%
Send email distributed through a department listserv	633	23.9%
Include information in liaison area's departmental/program newsletter	415	15.7%
Drop by faculty member's office during faculty member's office hours	376	14.2%
Hold office hours in liaison areas' physical space	283	10.7%
Hold office hours for liaison areas in library	267	10.1%
Post social media messages on liaison areas' pages/sites	222	8.4%
I do not communicate with faculty in my liaison areas	6	0.2%

Note. Totals are not presented, as respondents were able to select multiple items

Table 4.6. *Methods Used to Stay Up-to-Date on Liaison Areas*

Method Used	*N*	%
Reviewed the professional literature in my liaison area(s)	1820	68.7%
Attended programs or meetings related to my liaison area(s) at professional library association conferences	1451	54.8%
Monitored liaison area listservs	1078	40.7%
Attended workshops/training sessions in my liaison area(s)	1015	38.3%
Attend professional conferences related to my liaison area(s)	992	37.4%
Joined professional associations in my liaison area(s)	834	31.5%
Conducted research independently within my liaison area(s)	730	27.5%
Conducted research collaboratively within my liaison area(s)	632	23.8%
Earned a degree in my liaison area(s)	424	16.0%
Audited courses within my liaison area(s)	330	12.5%
Enrolled in courses within my liaison areas(s)	277	10.5%
Earned a professional certificate in my liaison area(s)	65	2.5%

Note. Totals are not presented, as respondents were able to select multiple items

Types of liaison work. One of the main purposes of the survey was to determine what type of work liaisons were currently engaged in as part of their positions. Within the literature, multiple work activities were identified and, for the survey, classified within four overarching areas: collection development, instruction services, research support, and outreach. Respondents were first asked to identify which of the four areas were part of their work responsibilities, then asked to identify all activities they engaged in within a selected area. Most respondents (92.8%) selected instruction services, followed by collection development (87.9%) and research support (87.4%). Only 60.3% of respondents selected Outreach as one of their work responsibilities.

Instruction services. Respondents who selected instruction services were asked to indicate all activities they engaged in from a list of 15 items (Table 4.7*). One-shot instruction sessions* was the most frequently identified instruction service activity (96.8%), followed by *one-on-one assignment consultations with students* (84.3%), and *create course guides* (83.3%). All other activities were selected by less than 60% of

respondents, with the three course instruction activities selected by less than 10% of respondents.

Table 4.7. *Respondents Involvement in Instruction Services Activities*

Instruction Activity	*n*	%
One-shot instruction sessions	2381	96.8%
One-on-one assignment consultations with students	2074	84.3%
Create course guides	2048	83.3%
Teach library-based workshops related to liaison areas	1434	58.3%
Multiple meeting instruction sessions	1381	56.2%
Create handouts	1329	54.0%
Create instructional tutorials	1159	47.1%
Include contact info in CMS, no structured contact planned	1141	46.4%
Collaborate on development of course assignments	1078	43.8%
Embedded into course, not instructor	936	38.1%
Provide copyright use information for course materials	711	28.9%
Collaborate on development of new courses	390	15.9%
Solo course instructor	231	9.4%
Course Co-Instructor	221	9.0%
Course Co-instructor with other librarians	86	3.5%

Note. Totals are not presented, as respondents were able to select multiple items

Collection development. Respondents who selected collection development were asked to indicate all activities they engaged in from a list of eight items. Unlike instruction services, almost all collection development activities were highly engaged in, with no activity selected by less than 50% of respondents (Table 4.8). The most common activities were *respond to unsolicited faculty requests for purchases* (94.6%), *select materials for liaison areas not in collaboration with liaison areas* (89.9%), and *consult with faculty in liaison areas to select materials relevant to faculty research and teaching needs* (86.9%).

Table 4.8. *Liaisons Involvement in Collection Development Activities*

Activity	*n*	%
Respond to unsolicited faculty requests for purchases	2203	94.6%
Select materials for liaison areas not in collaboration with liaison areas	2094	89.9%
Consult with faculty to select materials relevant to faculty research and teaching needs	2023	86.9%
Solicit faculty requests for materials to purchase	1822	78.2%
Pilot databases and other electronic resources	1741	74.8%
Weed the collection, not in collaboration	1733	74.4%
Ensure faculty publications are purchased for library collection	1384	59.4%
Consult with faculty to weed materials from collection	1164	50.0%

Note. Totals are not presented, as respondents were able to select multiple items

Research support. Respondents who selected research support were asked to indicate all activities they engaged in from a list of 19 items. Only one activity was selected by more than 50% of respondents: *one-on-one research consultations with faculty* (79.6%). All remaining activities were selected by less than 42% of respondents (Table 4.9).

Table 4.9. *Liaisons Involvement in Research Support Activities*

Activity	*N*	%
One-on-one research consultations with faculty	1845	79.6%
Provide faculty with information on open access publishing options	965	41.6%
Help faculty to manage/organize their citations	877	37.9%
Assist faculty with understanding copyright for their publications	871	37.6%
Help faculty to properly cite their sources	806	34.8%
Provide faculty with journal impact information	793	34.2%
Help faculty add items to an institutional repository	696	30.0%
Provide faculty with citation analysis info	577	24.9%
Compile literature reviews for faculty research	488	21.1%
Co-author research articles with faculty	366	15.8%
Provide faculty with data management support	332	14.3%
Assist with development of grant proposals (pre-grant submission)	323	13.9%
Co-present research findings with faculty	294	12.7%
Identify possible grant opportunities for faculty research	232	10.0%
Conduct systematic reviews for faculty research	224	9.7%
Serve as member of a research team (not grant-related)	219	9.5%
Serve as a member of a grant team (post-grant submission)	207	8.9%
Review faculty publications prior to submission for publication	185	8.0%
Help faculty add items to a disciplinary repository	155	6.7%

Note. Totals are not presented, as respondents were able to select multiple items

Outreach. Respondents who selected Outreach were asked to indicate all activities they engaged in from a list of 11 items. The two most selected activities were *attend liaison area departmental sponsored events* (77.3%) and *share updates about the library* (71.5%). These were followed by *offer library orientations for new faculty* (66.3%), *attend liaison area departmental meetings* (57.7%), and *offer library orientations for new students* (51.0%). All remaining activities (Table 4.10) were selected by less than 50% of respondents.

Table 4.10. *Liaison Involvement in Outreach Activities*

Activity	*n*	%
Attend liaison area departmental sponsored events	1234	77.3%
Share updates about the library	1142	71.5%
Offer library orientations for new faculty	1059	66.3%
Attend liaison area departmental meetings	921	57.7%
Offer library orientations for new students	815	51.0%
Participate in liaison area's program accreditation review processes	726	45.5%
Send lists of recent publications added to the library collection	452	28.3%
Meet with candidates for faculty positions	427	26.7%
Offer library orientations for new staff	370	23.2%
Host informal get-togethers with refreshments for liaison areas	210	13.1%
Serve on liaison area search committees	175	11.0%

Note. Totals are not presented, as respondents were able to select multiple items

Work type overlap. Performing more than one type of work was common for most respondents, with only 3.8% of respondents indicating they engaged in only one type of work, while nearly half (49.9%) selected all four types of work. Of the respondents who indicated only one type of work, collection development ($n = 52$) was the most selected. All combinations of liaison work reported by respondents can be found in Appendix E, Table E.3.

Liaisons' perceptions. The final two sections of the survey featured questions that asked respondents to rate their perception of statements related to liaison-faculty relationships and confidence in supporting faculty research activities. For perception of

liaison-faculty relationships, respondents were asked to rate their level of agreement with 16 statements about factors that could influence their ability to form relationships with faculty in their liaison areas. For perception of confidence in supporting faculty research, respondents were asked to rate their level of confidence in supporting 31 research activities. The basic descriptive and reliability statistics for these sections of the survey are presented here, while results of statistical analysis related to these perceptions are presented in Section III and Section IV of this chapter.

Liaisons' perceptions of liaison-faculty relationships. Because most liaisons support more than one area, and since experiences working with each area can vary, respondents were asked to first select one area to focus on when responding to statements about relationship-building. This selected area was not used as a variable in the data analysis; rather, it was used to help focus the participants' responses to each statement. Most respondents' ratings of statements about factors that could impact their ability to build relationships with faculty fell into the *somewhat disagree*, *neutral,* or *somewhat agree* categories – with very few *strongly disagree* or *strongly agree* ratings. Additionally, respondents were asked to rate their overall relationship-building experiences with faculty in their liaison area as *positive, neutral,* or *negative.* The median rating was *positive.* The median rating for each statement is presented in Table 4.11.

Table 4.11. *Median Scores for Perception of Faculty Relationship-Building Statements*

Statement	*N*	Mdn
It has been difficult to build relationships with some faculty in my liaison area	2559	4.00
Some faculty in my liaison area seek me out to build relationships	2554	4.00
I spend a lot of time building relationships with faculty in my liaison area	2557	3.00
I support too many programs to build relationships with faculty	2550	2.00
My other job responsibilities interfere with my ability to build relationships…	2556	3.00
I feel welcomed by some of the faculty in my liaison area	2556	5.00
I have limited contact with some faculty in my liaison area	2554	4.00
I feel my work as a liaison is respected by some of the faculty in my liaison area	2551	4.00
I am an equal partner in the relationships I've built with faculty	2550	4.00
Some faculty in my liaison area treat me like a subordinate	2547	3.00
I worry about my ability to build relationships with faculty in my liaison area	2550	3.00
My personality helps me to build relationships with faculty in my liaison area	2554	4.00
My knowledge of their subject area helps me to build relationships with faculty	2553	4.00
Some faculty in my liaison area treat me like a peer	2552	4.00
Building strong faculty relationships is the most important part of my job…	2552	4.00
Overall, I am satisfied with the relationships I've built with faculty…	2549	4.00
Overall, classification of relationship building experiences with faculty*	2555	1.00

Note. Scale was 1 = Strongly Disagree, 2 = Somewhat Disagree, 3 = Neither Disagree nor Agree, 4 = Somewhat Agree, 5 = Strongly Agree; *Scale was 1 = Positive, 2 = Neutral, 3 = Negative

Overview of responses to individual statements. Respondents' ratings of their overall satisfaction with the relationships they have built with faculty were positive (Appendix E, Table E.4); however, ratings for some individual statements indicated that even within mostly positive relationship-building experiences, some aspects of building those relationships may be perceived negatively. This was mostly evidenced by the 48.0% of respondents who somewhat or strongly agreed that their other job responsibilities interfered with their ability to build relationships with faculty, the 79.8% who somewhat or strongly agreed that they had limited contact with some faculty in their liaison area, the 32.6% who somewhat or strongly agreed that some faculty treated them like a subordinate, the 58.7% who somewhat or strongly agreed that it has been difficult to build relationships with some faculty in their liaison area, and the 38.8% who somewhat or strongly agreed that they worried about their ability to build relationships with faculty in their liaison area.

Reliability analysis. Reliability analysis was completed to determine the internal consistency reliability of the items included in the perceptions of relationship-building section of the survey. Cronbach's alpha ($\alpha = .85$; $N = 16$) is considered to be very good (DeVellis, 2012). The full item analysis summary table can be found in Appendix E, Table E.5.

Liaison confidence in supporting faculty research activities. Confidence ratings for the 31 research-related activities where liaisons might provide support showed that, on average, most respondents were only somewhat confident in their ability to support faculty research, with 48.5% having an individual median of 2.00 for the confidence items (Figure 1). In terms of the confidence items, three had a median score of one, indicating respondents were not at all confident in their ability to support faculty in those activities; 18 items had a median score of two, indicating that respondents were somewhat confident in their ability to support faculty in those activities; 8 items had median scores of three, indicating that respondents were confident in their ability to support faculty in those activities; and only two items had a median score of four, indicating that respondents were very confident in their ability to support faculty in those activities (Table 4.12).

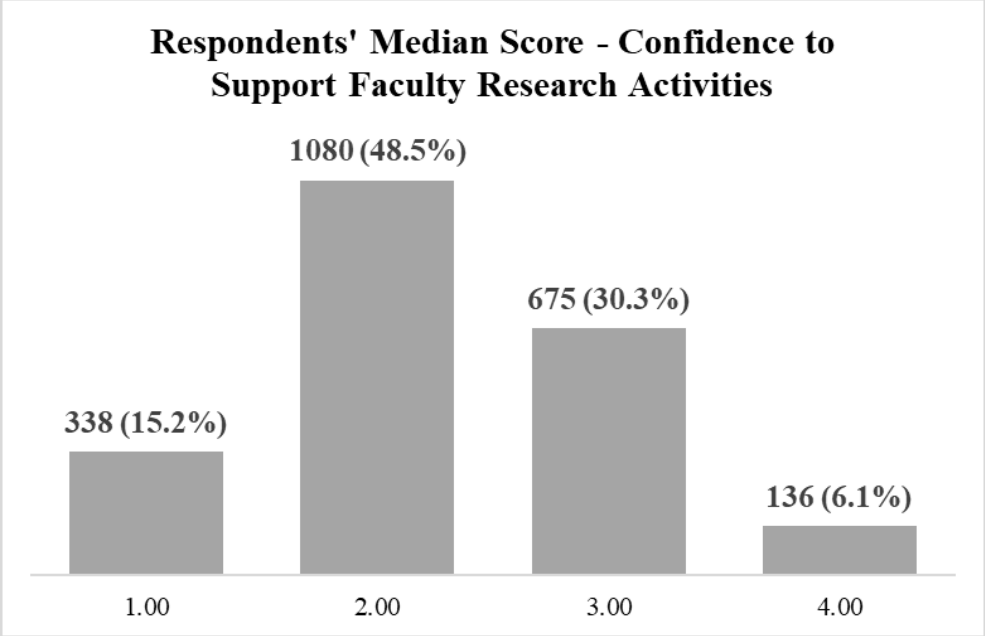

Figure 1. Respondents' individual median confidence score. Most respondents fall into the 2.00 (somewhat confident) and 3.00 (confident) groups. *N* = 2229

Table 4.12. *Median Scores for Ratings of Confidence to Support Faculty Research Activities*

Area of Research Support	*N*	Median
Assist faculty with quantitative data analysis	2457	1.00
Provide faculty with research data security support	2470	1.00
Provide faculty with research data sharing/use support	2463	1.00
Assist faculty with formulating quantitative research questions	2482	2.00
Assist faculty with formulating qualitative research questions	2483	2.00
Assist faculty with formulating quantitative research hypotheses	2474	2.00
Assist faculty with creating data collection instruments	2478	2.00
Assist faculty with the IRB process	2468	2.00
Assist faculty with data collection for their quantitative research	2465	2.00
Assist faculty with data collection for their qualitative research	2475	2.00
Assist faculty with locating data for their quantitative research	2468	2.00
Assist faculty with qualitative data analysis	2458	2.00
Assist faculty with adding items to a disciplinary repository	2449	2.00
Assist faculty with the development of a research data management plan	2469	2.00
Provide faculty with research data storage/preservation support	2468	2.00
Identify potential grant opportunities for faculty research	2465	2.00
Co-author research articles with faculty	2466	2.00
Serve on a faculty member's research team (not grant-related)	2459	2.00
Assist with development of faculty grant proposals (pre-grant submission)	2474	2.00
Serve on a faculty member's grant team (post-grant submission)	2466	2.00
Review faculty drafts prior to submission for publication	2466	2.00
Compile literature reviews for faculty research	2467	3.00
Assist faculty with locating data for their qualitative research	2461	3.00
Assist faculty with understanding copyright for their publications	2477	3.00
Assist faculty with understanding open access publishing options	2474	3.00
Assist faculty with adding items to an institutional repository	2463	3.00
Assist faculty with citation management	2479	3.00
Provide faculty with citation analysis of their research publications	2471	3.00
Provide faculty with journal impact information	2470	3.00
Instruct faculty on how to locate sources to support their research	2479	4.00
Assist faculty with properly citing their sources	2480	4.00

Note. Scale was 1 = Not at all confident, 2 = Somewhat confident, 3 = Confident, 4 = Very confident.

Overview of ratings of individual activities. Most of the activities with a median rating that indicated respondents were confident or very confident were related to literature searching and citations, activities commonly found in the literature of liaisons' work. Ratings for individual activities (Appendix E, Table E.6) showed only two activities where more than 50% of respondents were very confident: *Instruct faculty on how to locate sources to support their research* (70.3%) and *Assist faculty with properly*

citing their sources (55.7%). Activities where respondents were not at all confident or somewhat confident were mostly related to quantitative research, qualitative research, or research data management - activities less seen in the literature and only now emerging as possible areas for liaison support (see Koltay, 2016). Ratings for individual activities (Appendix E, Table E.7) showed three activities where more than 50% of respondents were not at all confident: *Assist faculty with quantitative data analysis* (55.8%), *Provide faculty with research data security support* (63.4%), and *Provide faculty with research data sharing/use support* (52.2%).

Reliability analysis. Reliability analysis was completed to determine the internal reliability of the 31 activities designed to measure liaison confidence in their ability to support faculty research activities. The final reliability of the scale was very good (α = .94, N = 31). The full item analysis summary table can be found in Appendix E, Table E.8.

Section II. Associations Between Organizational/Individual Factors and Liaison Work

A series of chi-square tests of association was conducted to determine what, if any, associations existed between organizational and individual factors (Table 4.13) and the four types of work that liaisons are engaged in: collection development, instruction services, research support, and outreach.

Table 4.13. *Organizational and Individual Factors Used in Data Analysis*

Factor	Variable Type
Organizational	
Institution Carnegie Classification	Categorical
Librarian status at institution	Categorical
Individual	
Age (Grouped)	Ordinal
Gender Identity	Categorical
Racial Identity	Categorical
Time as professional librarian	Ordinal
Time in current liaison position	Ordinal
Timing of liaison assignments	Categorical
Number of areas supported	Ordinal
Number of faculty supported	Ordinal
Discipline areas supported	Categorical
Undergraduate degree related to liaison areas	Categorical
Hold MLS degree	Categorical
Hold additional post-graduate degree	Categorical
Additional post-graduate degree related to liaison areas	Categorical
Liaisons' status at institution	Categorical
% of position devoted to liaison work	Ordinal
Type of Work	Categorical

Significance of chi-square analyses was set at $\alpha_{\text{altered}} = .0029$. This Bonferroni-adjusted alpha takes into account the number of individual analyses (17) conducted and helps to protect against Type I inflation error. Results with *p*-values at or below .0029 were considered statistically significant. Significant results where more than 20% of cells had expected cell frequencies less than five were not reported (Cochran, 1954). Cramer's *V* was used to establish the strength of association of any significant result. Cramer's *V* offers a measure of effect size for chi-square tables regardless of the number of rows and columns in the table (Warner, 2008). Interpretation of effect size based on Cramer's *V* followed the standards set by Cohen (1988), where .10 was a small effect, .30 was a medium effect, and .50 was a large effect. For Cramer's *V* this was further translated by Cohen (1988) as weak, moderate, strong, and very strong based on the

number of rows in the contingency table (Table 4.14). All significant chi-square results are reported, but only those that had at least a weak strength of association based on Cramer's *V* were interpreted. Interpretation of significant results was based on the adjusted standardized residuals of the cells (MacDonald & Gardner, 2000; Sharpe, 2015). Due to the large number of post-hoc tests conducted, a Bonferroni adjustment was also applied to the *p*-value used in post-hoc tests to control for Type-I error inflation.

Table 4.14. *Standards Followed for Interpretation of Effect Size for Significant Chi-Square Results Based on Cramer's V and Smallest Number of Rows in Table*

	Strength of Association			
# of rows	**Weak**	**Moderate**	**Strong**	**Very Strong**
2	.10 - .29	.30 - .49	.50 - .69	.70 - .90
3	.071 - .211	.212 - .353	.354 - .494	.495 - .636
4	.058 - .172	.173 - .288	.289 - .403	.404 - .520
5	.050 - .149	.150 - .249	.250 - .349	.350 - .450
6	.045 - .133	.134 - .223	.224 - .312	.313 - .402

Organizational and individual factors associated with performing different types of liaison work. Results of the chi-square tests of association found significant associations between different organizational and individual factors and each type of work (Table 4.15).

Collection development. Whether respondents performed collection development was significantly associated with four factors: Carnegie classification, institutional status of librarian, discipline focus of liaison areas, and liaisons' institutional status. Post-hoc analysis found that respondents working at institutions where librarians had tenure track faculty status, those supporting areas in the Arts & Humanities, and those who had tenured faculty status more often than expected indicated performing collection development; while those working at Special Focus: Four-Year institutions and those

supporting Professional Programs less often than expected indicated performing collection development.

Instruction services. Whether respondents provided instruction services was significantly associated with three factors: number of faculty supported, having an additional post-graduate degree related to liaison areas supported, and the percentage of position devoted to liaison work. Post-hoc analysis found that respondents who supported 10 or fewer faculty and those who had less than 25% of their positions devoted to liaison work less often than expected indicated providing instruction services. Respondents who supported more than 40 faculty, those whose additional post-graduate degree was related to their liaison areas, and those who had more than 25% of their positions devoted to liaison work more often than expected indicated providing instruction services.

Research support. Whether respondents provided research support was significantly associated with five factors: Carnegie classification, when liaison areas were assigned, number of faculty supported, having an additional post-graduate degree related to liaison areas supported, and the percentage of position devoted to liaison work. Post-hoc analysis found that respondents working at Doctoral institutions, those who had their specific liaison areas included in their job descriptions, those who supported more than 50 faculty, those who had an additional post-graduate degree related to their liaison areas, and those who had 25% or more of their positions devoted to liaison work more often than expected indicated providing research support. Respondents working at Baccalaureate institutions and those at Baccalaureate/Associate's institutions, those who had liaison responsibilities added to their jobs after they were hired, those who supported

20 or fewer faculty, and those who had less than 25% of their positions devoted to liaison work less often than expected indicated providing research support.

Outreach. Whether respondents engaged in outreach was significantly associated with eight factors: Carnegie classification, age, time in profession, time in current position, when liaison responsibilities assigned, number of faculty supported, liaison's institutional status, and percentage of position devoted to liaison work. Post-hoc analysis found that respondents working at Doctoral institutions, those between the ages of 25 and 44, those who had worked as librarians between one and 10 years, those who had been in their current positions between 1 and 5 years, those who had both some liaison responsibilities in their job descriptions and some assigned after they were hired, those supporting more than 50 faculty, those with tenure-track faculty status, and those who had 50% or more of their positions devoted to liaison work more often than expected indicated engaging in outreach. Respondents who were between the ages of 55 and 74, those who had worked as librarians for more than 25 years, those who had been in their current positions between 26 and 30 years, those who had liaison responsibilities added after they were hired, those supporting between 11-20 faculty, those with tenured faculty status, and those who had less than 25% of their positions devoted to liaison work less often than expected indicated engaging in outreach.

Table 4.15. *Organizational and Individual Factors Significantly Associated with Liaison Work*

Factor	χ^2	*df*	*N*	*p*	Cramer's *V*
Collection Development					
Carnegie Classification	49.34	5	2626	< .001	.137
Institutional Status of Librarians	24.62	5	2647	<.001	.096
Discipline Focus of Liaison Areas	74.27	5	2639	<.001	.168
Liaisons' Institutional Status	25.16	5	2648	<.001	.097
Instruction Services					
Number of Faculty Supported	53.34	5	2642	<.001	.142
Additional Post-Grad Degree Related to Liaison Areas	20.47	1	1385	<.001	.122
% of Position Devoted to Liaison Work	160.40	3	2622	<.001	.247
Research Support					
Carnegie Classification	183.78	5	2626	<.001	.265
Timing of Liaison Assignments	29.99	3	2647	<.001	.106
Number of Faculty Supported	65.50	5	2642	<.001	.163
Additional Post-Grad Degree Related to Liaison Areas	24.76	1	1385	<.001	.134
% of Position Devoted to Liaison Work	149.92	3	2622	<.001	.239
Outreach					
Carnegie Classification	29.69	5	2626	<.001	.106
Liaison's Age	87.88	6	2593	<.001	.184
Time in Profession	64.32	7	2647	<.001	.156
Time in Current Position	40.27	7	2648	<.001	.123
Timing of Liaison Assignments	27.54	3	2647	<.001	.102
Number of Faculty Supported	43.20	5	2642	<.001	.132
Liaisons' Institutional Status	29.86	5	2648	<.001	.106
% of Position Devoted to Liaison Work	86.17	3	2622	<.001	.181

Section III. Associations Between Organizational/Individual Factors and Perception of Liaison-Faculty Relationships

A series of chi-square tests of association and Spearman's rank order correlation analyses were conducted to determine what, if any, associations existed between organizational and individual factors and respondents' perceptions of their relationships with faculty in their liaison areas. The same organizational and individual factors explored in Section II (Table 4.13) were utilized in the analyses of respondents' perceptions of their relationships with faculty in their liaison areas. Perception was

originally measured by participants' responses to relationship-building statements using a 5-point Likert-type scale (1=strongly disagree, 2=somewhat disagree, 3= neither agree nor disagree, 4=somewhat agree, 5=strongly agree). For data analysis and to improve interpretation of significant findings, scale responses were collapsed into three categories - combining the strongly disagree and somewhat disagree responses into a "Disagree" category, and the somewhat agree and strongly agree responses into an "Agree" category. This is an acceptable practice when working with Likert-type scale responses and a study by Matell and Jacoby (1971) indicated that collapsing of categories did not detrimentally impact the reliability or validity of the items or the scale. Reliability analysis indicated respectable reliability for the items using the collapsed categories ($\alpha = .79$, $N = 16$).

For data analysis, significance of both chi-square and Spearman's rho analyses was set at $\alpha_{adjusted} = .0029$ using the Bonferroni adjustment, in response to the number of individual tests conducted (17) and to help control for Type I inflation error. Results with *p*-values at or below .0029 were considered statistically significant. Interpretation of significant chi-square results followed the same process outlined in Section II of this chapter. For interpretation of significant Spearman's rho coefficients, the standards set by Cohen (1988) were followed, where .10 is a small effect (weak), .30 is a medium effect (moderate), and .50 is a large effect (strong). Only significant chi-square statistics with at least a weak strength of association and Spearman's rho coefficients with at least a weak effect size (|.10| or above) were reported.

Significant chi-square associations with organizational factors. Chi-square tests of association found four significant associations between organizational factors and

respondents' perceptions of their relationships with faculty in their liaison area (Table 4.16).

Carnegie classification. For Carnegie classification, significant results were found for two statements. Post-hoc analysis found that respondents at Baccalaureate institutions more often than expected agreed that they spend a lot of time building relationships with faculty, while respondents at Baccalaureate/Associate's institutions more often than expected disagreed that they spend a lot of time building relationships. Respondents at Doctoral institutions more often than expected agreed that their knowledge of faculty subject areas helps them to build relationships with faculty, while those at Master's institutions less often than expected agreed that their knowledge helps them to build relationships with faculty.

Institutional status of librarians. For institutional status of librarians, significant results were found for two of the statements. Post-hoc analysis found that respondents at institutions where librarians have tenure track faculty status more often than expected agreed that they are an equal partner in the relationships they've built with faculty, while those at institutions where librarians had academic/professional status less often than expected agree that they were equal partners and those with staff status more often than expected disagreed that they were equal partners. Respondents working at institutions where librarians had tenure track faculty status were more often than expected agreed that some faculty in their liaison area treat them like a peer, while those working at institutions where librarians had staff status less often than expected agreed that faculty treated them like a peer.

Table 4.16. *Significant Associations Between Organizational Factors and Perception of Relationship Statements*

Statement	χ^2 (10)	*N*	*p*	Cramer's *V*
Carnegie Classification				
I spend a lot of time building relationships…	31.06	2534	.001	.078
My knowledge of their subject area helps…	29.42	2530	.001	.076
Institutional Status of Librarians				
I am an equal partner in the relationships…	36.48	2547	<.001	.085
Some faculty in my liaison area treat me like a peer	38.93	2549	<.001	.087

Note. Ellipses used to shorten some statements. Full text available in Appendix B.

Significant chi-square associations with individual factors. Chi-square tests of association found twenty-four significant associations between individual factors and liaisons' perceptions of their relationships with faculty in their liaison area (Table 4.17).

Racial identity. For racial identity, a significant result was found for the statement *I have limited contact with some faculty in my liaison area*. Post-hoc analysis found that respondents who identified as White more often than expected agreed that they have limited contact with some faculty in their liaison area, while those who identified as a minority more often than expected disagreed that they had limited contact with some faculty in their liaison area.

Timing of liaison assignments. For when specific liaison duties were assigned, significant results were found for four statements. Post-hoc analysis found that respondents whose liaison responsibilities were included in their job descriptions more often than expected agreed that some faculty in their liaison area seek them out, that they spend a lot of time building relationships with faculty, that their knowledge of a faculty member's subject area helps them to build relationships with faculty; but more often than expected disagreed that their other job responsibilities interfered with their ability to build relationships with faculty. Respondents who had specific liaison responsibilities assigned

after they were hired more often than expected disagreed that they spent a lot of time building relationships with faculty or that their knowledge of a faculty member's subject area helps them to build relationships; but more often than expected agreed that their other job responsibilities interfered with their ability to build relationships. And respondents who had liaison responsibilities added to their jobs after they were hired more often than expected disagreed that faculty seek them out and that they spend a lot of time building relationships with faculty; but more often than expected were neutral about their knowledge of faculty members' subject areas helping them to build relationships.

Discipline focus of liaison areas. For discipline focus of respondents' liaison areas, significant results were found for eight of the statements and the overall satisfaction rating. Post-hoc analysis results are presented organized by discipline focus.

Arts & Humanities, Social Sciences, and multiple disciplines. Respondents who supported areas in the Arts & Humanities more often than expected disagreed that they support too many programs to build relationships with faculty, but more often than expected agreed that their knowledge of faculty members' subject areas helps them to build relationships. Respondents who supported areas in the Social Sciences more often than expected agreed that they are equal partners in the relationships they've built with faculty. And respondents who supported areas across multiple disciplines less often than expected disagreed that they support too many programs to build relationships.

STEM. Respondents who supported areas in STEM more often than expected disagreed that they spend a lot of timing building relationships with faculty, that their knowledge of faculty members' subject areas help them to build relationships, that some faculty treat them like a peer, and that they were overall satisfied with the relationships

they've built with faculty. These respondents also less often than expected agreed that their work as a liaison is respected by some faculty, that they are equal partners in the relationships they've built with faculty, and more often than expected rated their overall relationship-building experiences as negative.

Professional programs. Respondents who supported Professional Programs more often than expected agreed that they spend a lot of time building relationships with faculty, that they are equal partners in the relationships they've built with faculty, that some faculty treat them like a peer, and that they were overall satisfied with the relationships they've built with faculty. Respondents who supported Professional Programs also more often than expected rated their overall relationship-building experiences as positive.

Education and degrees. Significant associations were found for whether respondents had undergraduate degrees related to their liaison areas, whether they had an additional post-graduate degree, and whether their additional post-graduate degree was related to their liaison areas.

Undergraduate degree. For whether respondents had an undergraduate degree related to the liaison areas they support, one moderately weak association was found. Post-hoc analysis showed that respondents whose undergraduate degrees were related to their liaison areas more often than expected agreed that their knowledge of faculty members' subject areas helps them to build relationships with faculty.

Additional post-graduate degree. For holding an additional post-graduate besides their MLS and whether that degree was related to their liaison areas, five significant associations were found. Post-hoc analysis showed that respondents with an additional

post-graduate degree more often than expected agreed that their knowledge of faculty members' subject areas helps them to build relationships with faculty. Respondents whose additional post-graduate degree was related to their liaison area more often than expected agreed that some faculty seek them out to build relationships, that they spend a lot of time building relationships with faculty, that their knowledge of faculty members' subject areas helps them to build relationships, and that overall, they were satisfied with the relationships they've built with faculty.

Liaisons' status at institution. For liaisons' institutional status, five significant associations were found. Post-hoc analysis showed that respondents with tenured faculty status more often than expected agreed that they were equal partners in the relationships they've built with faculty, more often than expected disagreed that some faculty treat them like a subordinate or that they worry about their ability to build relationships with faculty, and more often than expected felt neutral about whether some faculty treat them like a peer. Respondents with tenure-track faculty status more often than expected agreed that they worry about their ability to build relationships with faculty, less often than expected disagreed that some faculty treat them like a peer, and less often than expected agreed that overall, they were satisfied with the relationships they've built with faculty. Respondents with Academic/Professional status more often than expected disagreed that they were equal partners in the relationships they've built with faculty, while those with Staff status more often than expected were neutral, and those with an "Other" status more often than expected agreed. Those with an "Other" status also more often than expected agreed that overall, they were satisfied with the relationships they've built with faculty.

Table 4.17. *Significant Associations Between Individual Factors and Perception of Relationship Statements*

Factor & Statement	χ^2	*df*	*N*	*p*	Cramer's *V*
Racial Identity					
I have limited contact…	27.71	4	2554	<.001	.074
Timing of Liaison Assignments					
Some faculty in my liaison area seek me out…	25.88	6	2551	<.001	.071
I spend a lot of time building relationships…	61.56	6	2554	<.001	.110
My other job responsibilities interfere…	38.67	6	2553	<.001	.087
My knowledge of their subject area helps…	45.50	6	2550	<.001	.094
Discipline Focus of Liaison Areas					
I spend a lot of time building relationships…	35.69		2548	<.001	.084
I support too many programs to build relationships…	48.76		2541	<.001	.098
*I feel welcomed by some of the faculty…	28.72		2547	.001	.075
I feel my work as a liaison is respected…	30.56		2542	.001	.078
I am an equal partner in the relationships I've built …	36.40		2541	<.001	.085
My knowledge of their subject area helps…	54.48		2544	<.001	.103
Some faculty in my liaison area treat me like a peer	49.74		2543	<.001	.099
Overall, I am satisfied with the relationships I've built…	43.77		2540	<.001	.093
Overall classification of relationship building experiences	49.57		2546	<.001	.099
Undergraduate Degree Related to Liaison Areas					
My knowledge of their subject area helps…	201.03		2552	<.001	.281
Hold an Additional Post-Graduate Degree					
My knowledge of their subject area helps…	99.20	4	2500	<.001	.141
Post-Graduate Degree Related to Liaison Areas					
Some faculty in my liaison area seek me out…	15.11	10	1341	.001	.106
I spend a lot of time building relationships…	21.06	10	1342	<.001	.125
My knowledge of their subject area helps…	172.38	10	1338	<.001	.359
Overall, I am satisfied with the relationships I've built …	12.31	10	1336	.0021	.096
Liaison Status at Institution					
I am an equal partner in the relationships I've built…	61.65	10	2549	<.001	.110
Some faculty…treat me like a subordinate	29.28	10	2546	.001	.076
I worry about my ability to build relationships…	61.90	10	2549	<.001	.110
Some faculty in my liaison area treat me like a peer	53.98	10	2551	<.001	.103
Overall, I am satisfied with the relationships I've built…	28.01	10	2548	.0018	.074

Note. *no significant findings from post-hoc analysis; Ellipses used to shorten some statements. Full text available in Appendix B.

Significant Spearman's rho associations with individual factors. Spearman's rho found 22 significant associations between individual factors and liaisons' perceptions of their relationships with faculty in their liaison area.

Age. For liaisons' age, significant associations were found for four of the statements (Table 4.18), two weak negative associations and two weak positive associations. The older a respondent was, the more likely they were to disagree that faculty treated them like a subordinate or to worry about their ability to build relationships with faculty; and the more likely they were to agree that their knowledge of a faculty member's subject area helps them to build relationship and to, overall, be satisfied with the relationships they've built with faculty.

Table 4.18. *Significant Spearman's Rho Correlations for Age and Perception of Faculty Relationship Statements*

Perception Statement	r_s	*p*	*n*
Some faculty in my liaison area treat me like a subordinate	-0.12	< .001	2498
I worry about my ability to build relationships…	-0.24	< .001	2502
My knowledge of their subject area helps…	0.12	< .001	2504
Overall, I am satisfied with the relationships I've built…	0.12	< .001	2500

Note. Ellipses used to shorten some statements. Full text available in Appendix B.

Time in profession and in current position. For time in profession and time in current position, 12 significant associations were found (Table 4.19). The longer a respondent had worked professionally as a librarian and the longer they had been in their current liaison position, the more likely they were to agree that that they are equal partners in the relationships they've built with faculty, that their knowledge of a faculty member's subject area helps them to build relationships, and, overall, to be satisfied with the relationships they've built with faculty; but the longer they had worked professionally as a librarian and the longer they had been in their current liaison position, the more

likely they were to disagree that some faculty treat them like a subordinate or to worry about their ability to build relationships with faculty. Additionally, the longer a respondent had been in field, the more likely they were to feel their work as a liaison is respected by some faculty; and the longer they had been in their current position, the more likely they were to rate their overall relationship building experience as positive.

Table 4.19. *Significant Spearman's rho Correlations for Time in Profession/Time in Current Position and Perception of Faculty Relationship Statements*

Perception Statement	r_s	*p*	*n*
Time in Profession			
I feel my work as a liaison is respected…	0.11	< .001	2549
I am an equal partner in the relationships I've built with faculty	0.10	< .001	2548
Some faculty in my liaison area treat me like a subordinate	-0.11	< .001	2545
I worry about my ability to build relationships with faculty…	-0.22	< .001	2548
My knowledge of their subject area helps…	0.10	< .001	2551
Overall, I am satisfied with the relationships I've built…	0.14	< .001	2547
Time in Current Position			
I am an equal partner in the relationships I've built with faculty	0.10	< .001	2548
Some faculty in my liaison area treat me like a subordinate	-0.11	< .001	2545
I worry about my ability to build relationships with faculty…	-0.20	< .001	2548
My knowledge of their subject area helps…	0.12	< .001	2551
Overall, I am satisfied with the relationships I've built…	0.14	< .001	2547
Overall classification of relationship building experiences	-0.10	< .001	2553

Note. Ellipses used to shorten some statements. Full text available in Appendix B.

Number of liaison areas and number of faculty supported. For the number of liaison areas and the number of faculty supported, six significant associations were found (Table 4.20). The more liaison areas and the more faculty a respondent supported, the more likely they were to agree that they support too many programs to build relationships with faculty. Additionally, the more faculty a respondent supported, the more likely they were to agree that some faculty seek them out to build relationships, that they spend a lot of time building relationships, that they feel welcomed by some faculty, and that their work as a liaison is respected by some faculty.

Table 4.20. *Significant Spearman's rho Correlations for Number of Liaison Areas/Number of Faculty Supported and Perception of Faculty Relationship Statements*

Perception Statement	r_s	*p*	*n*
Number of Liaison Areas Supported			
I support too many programs to build relationships with faculty	0.17	< .001	2518
Number of Faculty Supported			
Some faculty in my liaison area seek me out…	0.13	< .001	2550
I spend a lot of time building relationships with faculty…	0.16	< .001	2553
I support too many programs to build relationships with faculty	0.17	< .001	2546
I feel welcomed by some of the faculty in my liaison area	0.10	< .001	2552
I feel my work as a liaison is respected…	0.11	< .001	2547

Note. Ellipses used to shorten some statements. Full text available in Appendix B.

Percentage of respondents' positions devoted to liaison responsibilities.

Spearman's rho analysis found thirteen significant associations for percentage of respondents' positions devoted to liaison responsibilities (Table 4.21). The higher the percentage of respondents' positions devoted to liaison work, the less likely respondents were to disagree that faculty seek them out to build relationships, that they spend a lot of time building relationships with faculty, that they feel welcomed by some faculty, that they feel their work as a liaison is respected by some faculty, that they are equal partners in the relationships they've built with faculty, that their personality helps them to build relationships with faculty, that their knowledge of a faculty member's subject area helps them to build relationships, that some faculty treat them like a peer, that building strong faculty relationships is the most important part of their liaison work, and to, overall, be satisfied with the relationships they've built with faculty. Additionally, the higher the percentage of respondents' positions devoted to liaison work, the more likely they were to agree that their other job responsibilities interfere with their ability to build relationships with faculty and the more likely they were to rate their overall relationship-building experience as positive.

Table 4.21. *Significant Spearman's rho Correlations for Percentage of Position Devoted to Liaison Responsibilities and Perception of Faculty Relationship Statements*

Perception Statement	r_s	*p*	*n*
Some faculty in my liaison area seek me out to build relationships	-0.22	< .001	2551
I spend a lot of time building relationships with faculty…	-0.38	< .001	2554
My other job responsibilities interfere with my ability…	0.19	< .001	2553
I feel welcomed by some of the faculty in my liaison area	-0.12	< .001	2553
I have limited contact with some faculty in my liaison area	0.06	.0017	2551
I feel my work as a liaison is respected by some of the faculty…	-0.21	< .001	2548
I am an equal partner in the relationships I've built with faculty	-0.13	< .001	2547
My personality helps me to build relationships with faculty…	-0.13	< .001	2551
My knowledge of their subject area helps me to build….	-0.12	< .001	2550
Some faculty in my liaison area treat me like a peer	-0.13	< .001	2549
Building strong faculty relationships is the most important part…	-0.14	< .001	2549
Overall, I am satisfied with the relationships I've built…	-0.20	< .001	2546
Overall classification of relationship building experience	0.14	< .001	2552

Note. Ellipses used to shorten some statements. Full text available in Appendix B.

Section IV. Associations Between Organizational/Individual Factors and Respondents' Confidence in Supporting Faculty Research

A series of chi-square tests of association and Spearman's rank-order correlation analyses were conducted to determine what, if any, associations existed between organizational and individual factors and respondents' confidence in supporting faculty research activities. Confidence was measured using a 4-point rating scale (1=not at all confident, 2=somewhat confident, 3= confident, 4=very confident). For data analysis, significance of both chi-square and Spearman's rho analyses was set at $\alpha_{\text{adjusted}} = .0029$ using the Bonferroni adjustment, in response to the number of individual tests conducted (17) and to help control for Type I inflation error. Statistical analyses and interpretation of results followed the same standards identified in Sections II and III of this chapter.

Significant chi-square associations with organizational factors. Chi-square tests of association found 14 significant associations between organizational factors

(Carnegie classification and institutional status of librarians) and respondents' ratings of confidence in supporting faculty research activities (Table 4.22).

Carnegie classification. For Carnegie classification, significant associations were found with 10 research activities. Post hoc analyses showed the following differences based on Carnegie classification of respondents' institutions.

Four-year special focus, Doctoral, and Master's institutions. Respondents working at Special Focus: Four-Year institutions more often than expected indicated being very confident in their ability to assist faculty with formulating quantitative research questions, and more often than expected indicated being confident in their ability to assist faculty with formulating quantitative research hypotheses and compile literature reviews for faculty research. Respondents at Doctoral institutions more often than expected indicated being very confident in their ability to provide faculty with citation analysis of their research publications and to co-author research articles with faculty, more often than expected indicated being either confident or very confident in their ability to provide faculty with journal impact information, and more often than expected indicated being confident in their ability to assist faculty with the development of an RDM plan. And respondents at Master's institutions more often than expected indicated being not at all confident in their ability to provide faculty with citation analysis of their research publications or assist faculty with the development of an RDM plan, and more often than expected indicated being either not at all confident or somewhat confident in their ability to provide faculty with journal impact information.

Baccalaureate, Baccalaureate/Associates, and Associate's institutions. Respondents at Baccalaureate institutions more often than expected indicated being not at

all confident in their ability to assist faculty with formulating quantitative research questions or identify potential grant opportunities for faculty research, but more often than expected indicated being somewhat confident in their ability to provide faculty with citation analysis of their research publications. Respondents at Baccalaureate/Associate's institutions more often than expected indicated being not at all confident in their ability to assist faculty with adding items to an institutional repository or provide faculty with journal impact information. And respondents at Associate's institution more often than expected indicated being not at all confident in their ability to provide faculty with citation analysis of their research publications or provide faculty with journal impact information, but more often than expected indicated being somewhat confident in their ability to identify potential grant opportunities for faculty research.

***Institutional status of librarians*.** For institutional status of librarians, significant results were found for four of the research activities. Respondents working at institutions where librarians had tenure track faculty status more often than expected indicated being confident or very confident in their ability to assist faculty with the IRB process, less often than expected indicated being not at all confident in their ability to provide faculty with journal impact information and in their ability to serve on a faculty member's grant team; but more often than expected indicated being very confident in their ability to co-author research articles with faculty. Respondents at institutions where librarians had Academic/Professional status more often than expected indicated being not at all confident in their ability to assist faculty with the IRB process. And respondents at institutions where librarians had Staff status more often than expected indicated being not

at all confident in their ability to assist faculty with the IRB process or to co-author research articles with faculty.

Table 4.22. *Significant Associations between Carnegie Classification/Institutional Status of Librarians and Confidence to Support Faculty Research Activities*

Activity	χ^2 (15)	*N*	*p*	Cramer's *V*
Carnegie Classification				
Assist with formulating quant. research questions	37.70	2460	.001	.071
Assist with formulating quant. research hypotheses	36.24	2452	.002	.070
Assist with adding items to an institutional repository	70.55	2442	<.001	.098
Provide citation analysis of fac. research publications	62.57	2449	<.001	.092
Provide journal impact information	175.95	2449	<.001	.155
Assist with development of an RDM plan	41.40	2448	<.001	.075
Identify potential grant opportunities	67.24	2444	<.001	.096
Co-author research articles with faculty	36.94	2444	.001	.071
Compile literature reviews for faculty research	51.45	2445	<.001	.084
Serve on a faculty member's research team*	41.84	2437	<.001	.076
Institutional Status of Librarians				
Assist with the IRB process	56.45	2465	<.001	.087
Provide journal impact information	36.29	2468	.002	.070
Co-author research articles with faculty	70.60	2464	<.001	.098
Serve on a faculty member's grant team	35.31	2464	.002	.069

Note. *No significant result found during post-hoc analysis.

Significant chi-square associations with individual factors. Chi-square tests of association found 111 significant associations between individual factors and respondents' ratings of their confidence to support faculty activities.

Gender identity. For gender identity, significant associations were found for 12 of the activities (Table 4.23). Post hoc analysis showed that respondents who identified as Male more often than expected indicated being confident or very confident, while those who identified as Female more often than expected indicated being not at all confident in their ability to assist faculty with formulating quantitative research questions and quantitative research hypotheses; with quantitative and qualitative data analysis; and with research data security support. Those who identified as Male also more often than

expected indicated being very confident, while those who identified as Female more often than expected indicated being not at all confident in their ability to assist faculty with formulating qualitative research questions, creating data collection instruments, data collection for quantitative and qualitative research, locating data for their qualitative research, and research data sharing/use support. And for assisting with research data sharing/use support, respondents who identified as Male more often than expected indicated being either somewhat confident or very confident, while those who identified as Female more often than expected indicated being not at all confident.

Table 4.23. *Significant Associations Between Gender Identity and Confidence to Support Faculty Research Activities*

Research-Related Activity	χ^2 (6)	*N*	*p*	Cramer's *V*
Assist with formulating quantitative research questions	58.41	2482	<.001	.108
Assist with formulating qualitative research questions	45.73	2483	<.001	.096
Assist with formulating quant. research hypotheses	78.21	2474	<.001	.126
Assist with creating data collection instruments	27.97	2478	<.001	.075
Assist with data collection for quantitative research	41.31	2465	<.001	.092
Assist with data collection for qualitative research	31.37	2475	< .001	.080
Assist with locating data for qualitative research	35.11	2461	<.001	.084
Assist with quantitative data analysis	46.35	2457	<.001	.097
Assist with qualitative data analysis	45.84	2458	<.001	.097
Provide with research data storage/preservation support	48.16	2468	< .001	.099
Provide with research data security support	45.73	2470	<.001	.096
Provide with research data sharing/use support	43.20	2463	<.001	.094

Racial identity. For racial identity, three significant associations were found (Table 4.24). Post hoc analysis showed that respondents who identified as a Minority more often than expected indicated being very confident in their ability to assist faculty with creating data collection instructions; more often than expected indicated being confident or very confident in their ability to identify potential grant opportunities for faculty research; and more often than expected indicated being confident in their ability

to assist faculty with data collection for their qualitative research. Respondents who identified as White more often than expected indicated being not at all confident in their ability to identify potential grant opportunities for faculty research or to assist faculty with data collection for their qualitative research.

Table 4.24. *Significant Associations between Racial Identity and Confidence to Support Faculty Research Activities*

Research-Related Activity	χ^2 (6)	*N*	*p*	Cramer's *V*
Assist with creating data collection instruments	30.72	2478	<.001	.079
Assist with data collection for their qualitative research	26.24	2475	< .001	.073
Identify potential grant opportunity for faculty research	26.33	2465	<.001	.073

Timing of liaison assignments. For when liaison responsibilities were assigned, 13 significant associations were found (Table 4.25). Post hoc analysis showed distinct differences between respondents who had specific liaison responsibilities included in their job descriptions and those who had liaison responsibilities added to their positions after they were hired, with the former more often than expected indicating being very confident and the latter more often than expected indicating being not at all confident in their ability to assist faculty with formulating qualitative research questions, the IRB process, citation analysis of faculty research publications, co-author research articles with faculty, serve on a faculty member's research team, develop grant proposals, and serve on a faculty member's grant team.

Additionally, respondents who knew what their specific liaison responsibilities were when they were hired more often than expected indicated being very confident in their ability to assist faculty with data collection for their quantitative research, the development of an RDM plan, and provide faculty with journal impact information;

while those who had liaison responsibilities added to their positions after they were hired more often than expected indicated being not at all confident in their ability to assist faculty with creating data collection instrument or add items to an institutional repository. One additional finding showed that respondents who both knew what some of their liaison responsibilities would be when hired and had some responsibilities assigned after they were hired, more often than expected indicated being only somewhat confident in their ability to assist faculty with the IRB process.

Table 4.25. *Significant Associations between Timing of Liaison Assignments and Confidence to Support Faculty Research Activities*

Research-Related Activity	χ^2 (9)	*N*	*p*	Cramer's *V*
Assist with formulating qualitative research questions	34.55	2480	<.001	.068
Assist with creating data collection instruments	25.85	2475	.002	.059
Assist with the IRB process	36.52	2465	<.001	.070
Assist with data collection for their quantitative research	25.70	2462	.002	.059
Assist with adding items to an institutional repository	31.41	2460	<.001	.065
Provide citation analysis of faculty research publications	43.46	2468	< .001	.077
Provide journal impact information	52.33	2467	<.001	.084
Assist with development of an RDM plan	36.15	2466	<.001	.070
Provide with research data storage/preservation support	27.33	2465	.001	.061
Co-author research articles with faculty	51.90	2463	<.001	.084
Serve on a faculty member's research team	39.20	2456	<.001	.073
Assist with development of faculty grant proposals	31.13	2471	< .001	.065
Serve on a faculty member's grant team	25.52	2463	.002	.059

Discipline focus of liaison areas. For the discipline focus of liaison areas supported, 23 significant associations were found (Table 4.26). Post-hoc analysis showed differences based on the discipline focus of liaison areas supported.

Professional programs. Respondents who supported Professional Programs more often than expected indicated being very confident in their ability to assist with the IRB process, assist with understanding open access publishing options, provide journal impact information, co-author research articles, compile literature reviews for faculty research,

and serve on a faculty member's research team. Respondents who supported Professional Programs also more often than expected indicated being confident or very confident in their ability to assist with formulating quantitative research questions; and more often than expected indicated being confident in their ability to assist with formulating quantitative research hypotheses and locating data for quantitative research.

STEM. Respondents who supported areas in STEM more often than expected indicated being not at all confident in their ability to assist with formulating qualitative research questions, assist with data collection for qualitative research, co-author research articles with faculty, and serve on a faculty member's research team. But they less often than expected indicated being not at all confident in their ability to assist with adding items to a disciplinary repository, assist with citation management, and provide research data sharing/use support. They also more often than expected indicated being very confident in their ability to provide citation analysis of faculty research publications, provide journal impact information, and assist with the development of an RDM plan; and somewhat confident in their ability to provide research data storage/preservation support.

Arts & Humanities. Respondents who supported areas in the Arts & Humanities more often than expected indicated being not at all confident in their ability to assist with locating data for quantitative research or to provide journal impact information, and less often than expected indicated being very confident in their ability to provide citation analysis of faculty research publication. However, respondents who supported areas in the Arts & Humanities more often than expected indicated being confident in their ability to assist with qualitative data analysis; and less often than expected indicated being not at

all confident in their ability to assist with adding items to a disciplinary repository, assist with citation management, co-author research articles with faculty, and serve on a faculty member's grant team.

Multiple disciplines. Those who supported areas across multiple disciplines more often than expected indicated being not at all confident in their ability to assist with adding items to an institutional repository, provide research data storage/preservation support, and provide research data sharing/use support.

Table 4.26. *Significant Associations between Discipline Focus and Confidence to Support Faculty Research Activities*

Research-Related Activity	χ^2 (15)	*N*	*p*	Cramer's *V*
Assist with formulating quantitative research questions	53.95	2474	<.001	.085
Assist with formulating qualitative research questions	58.17	2475	<.001	.089
Assist with formulating quantitative research hypotheses	40.58	2466	<.001	.074
Assist with data collection for their quantitative research	25.70	2462	.002	.059
Assist with the IRB process	34.53	2460	.0028	.068
Assist with data collection for qualitative research	39.00	2467	.001	.073
Assist with locating data for quantitative research	74.49	2460	<.001	.100
Assist with qualitative data analysis	41.62	2451	<.001	.075
Assist with understanding copyright*	40.00	2470	<.001	.073
Assist with understanding open access publishing options	41.53	2467	<.001	.075
Assist with adding items to an institutional repository	44.75	2456	<.001	.078
Assist with adding items to a disciplinary repository	42.91	2442	<.001	.077
Assist with citation management	48.23	2472	<.001	.081
Provide citation analysis of faculty research publications	52.02	2464	<.001	.084
Provide journal impact information	110.35	2463	<.001	.122
Assist with development of an RDM plan	70.20	2462	<.001	.097
Provide research data storage/preservation support	54.58	2461	<.001	.086
Provide research data sharing/use support	50.44	2456	<.001	.083
Co-author research articles with faculty	73.26	2459	<.001	.100
Compile literature reviews for faculty research	89.60	2460	<.001	.110
Serve on a faculty member's research team	73.60	2452	<.001	.100
Serve on a faculty member's grant team	51.00	2459	<.001	.083
Review faculty drafts prior to submission*	40.85	2459	<.001	.074

Note. *no significant findings from post-hoc analysis

Education and degrees. In terms of individual factors related to education, 34 significant associations were found for whether respondents had undergraduate degrees

related to their liaison areas, whether they held an MLS or equivalent degree, whether they held an additional post-graduate degree, and whether their additional post graduate degree was related to their liaison areas (Table 4.27).

Undergraduate degree. For whether respondents had an undergraduate degree related to the liaison areas they support, significant results were found for three activities. Post-hoc analysis showed that respondents who had undergraduate degrees related to their liaison areas more often than expected indicated being confident or very confident in their ability to assist with formulating qualitative research questions and with qualitative data analysis, while those who did not have undergraduate degrees related to their liaison areas more often than expected indicated being not at all confident. Those with undergraduate degrees related to their liaison areas more often than expected indicated being very confident in their ability to serve on a faculty member's grant team, while those whose degrees were not related more often than expected indicated being not at all confident.

*MLS degree***.** For whether respondents held an MLS or equivalent degree, significant results were found for seven activities. Post-hoc analysis showed that respondents who did not hold an MLS degree more often than expected indicated being very confident in their ability to assist with formulating quantitative and qualitative research questions, formulating quantitative research hypotheses, data collection for quantitative and qualitative research, qualitative data analysis, and providing research data storage/preservation support. Respondents who did hold an MLS degree more often than expected indicated being not at all confident in their ability to assist faculty with formulating quantitative research questions and hypotheses, data collection for qualitative

research, qualitative data analysis, and providing research data storage/preservation support.

*Additional post-graduate degrees***.** For holding an additional post-graduate degree besides an MLS and whether that degree was related to their liaison areas, 24 significant associations were found. Post-hoc analysis showed that respondents who held an additional post-graduate degree more often than expected indicated being very confident, or to be either confident or very confident in their ability to assist faculty with: formulating qualitative research questions and quantitative research hypotheses, creating data collection instruments, data collection for quantitative and qualitative research, locating data for qualitative research, quantitative and qualitative data analysis, compiling literature reviews for faculty research, reviewing faculty drafts prior to submission for publication, the IRB process, development of grant proposals, co-authoring research articles with faculty, properly citing sources, and serving on a faculty member's research or grant team. Respondents who did not hold an additional post-graduate degree more often than expected indicated being not at all confident in their ability to support these activities except for properly citing sources, where they more often than expected indicated being somewhat confident, and serving on a faculty member's research team, where they more often than expected indicated being either not at all confident or somewhat confident.

For whether their additional post-graduate degree related to their liaison areas, post-hoc analysis showed that those whose additional post-graduate degree was related to their liaison areas more often than expected indicated being very confident in their ability to assist faculty with formulating qualitative research questions, co-authoring research

articles with faculty, and reviewing faculty drafts prior to submission for publication. Those whose additional post-graduate degree was not related to their liaison areas more often than expected indicated being not at all confident in their ability to assist faculty with formulating qualitative research questions, data collection for qualitative research, co-authoring research articles with faculty, serving on a faculty member's grant team, and reviewing faculty drafts prior to submission for publication.

Table 4.27. *Significant Associations between Individual Education Factors and Confidence to Support Faculty Research Activities*

Research-Related Activity	χ^2	*df*	*N*	*p*	Cramer's *V*
Undergraduate Degree Related					
Assist with formulating qual. research questions	29.15	3	2482	<.001	.108
Assist with qual. data analysis	27.82	3	2457	<.001	.106
Serve on a faculty member's grant team	24.07	3	2465	<.001	.099
Hold MLS					
Assist with formulating quant. research questions	35.93	3	2482	< .001	.120
Assist with formulating qual. research questions	47.47	3	2483	< .001	.138
Assist with formulating quant. research hypotheses	43.08	3	2474	<.001	.132
Assist with data collection for quant. research	56.45	3	2465	< .001	.151
Assist with data collection for qual. research	33.16	3	2475	<.001	.116
Assist with qual. data analysis	39.43	3	2458	< .001	.127
Provide research data storage/preservation support	35.76	3	2468	<.001	.120
Hold Additional Post-Graduate Degree					
Assist with formulating qual. research questions	94.81	2	2436	<.001	.140
Assist with formulating quant. research hypotheses	24.80	2	2427	< .001	.071
Assist with creating data collection instruments	39.40	2	2431	< .001	.090
Assist with IRB process	48.84	2	2421	<.001	.100
Assist with data collection for quant. research	27.42	2	2418	<.001	.075
Assist with data collection for qual. research	68.32	2	2428	<.001	.119
Assist with locating data for qual. research	47.84	2	2414	<.001	.100
Assist with quant. data analysis	34.73	2	2410	< .001	.085
Assist with qual. data analysis	86.49	2	2411	<.001	.134
Assist with properly citing sources	24.64	2	2433	<.001	.071
Co-author research articles with faculty	96.21	2	2419	<.001	.141
Compile literature reviews for faculty research	29.44	2	2420	< .001	.078
Serve on a faculty member's research team	68.74	2	2412	<.001	.119
Assist with development of grant proposals	64.49	2	2427	<.001	.115
Serve on a faculty member's grant team	67.42	2	2420	<.001	.118
Review faculty drafts prior to submission	85.56	2	2420	<.001	.133
Additional Post-Graduate Degree Related					
Assist with formulating quant. research questions*	14.22	3	1304	.0026	.104
Assist with formulating qual. research questions	38.29	3	1304	<.001	.171
Assist with data collection for qual. research	17.70	3	1304	.001	.117
Co-author research articles with faculty	24.59	3	1297	<.001	.138
Serve on a faculty member's research team	29.15	3	1290	<.001	.150
Assist with development of grant proposals	15.71	3	1303	.001	.110
Serve on a faculty member's grant team	18.54	3	1299	<.001	.119
Review faculty drafts prior to submission	18.78	3	1298	<.001	.120

Liaison status at institution. For liaisons' institutional status, significant associations were found for two activities: assisting faculty with the IRB process, χ^2 (15,

$N = 2466) = 53.29$, $p < .001$, Cramer's $V = .085$; and co-authoring research articles with faculty, χ^2 (15, $N = 2465) = 68.23$, $p < .001$, Cramer's $V = .096$. Post-hoc analysis showed that respondents who had Academic/Professional status more often than expected indicated being not at all confident in their ability assist faculty with the IRB process and their ability to co-author research articles with faculty. Respondents who were tenured faculty more often than expected indicated being very confident in their ability to co-author research articles with faculty, while those with Staff status were more likely to be not at all confident.

Significant Spearman's rho associations with individual factors. Spearman's rho found 24 significant associations between individual factors and liaisons' confidence in their ability to support faculty research activities.

***Age, time in profession, and time in current position*.** Spearman's rho analyses found five significant associations for the individual factors of age, time in profession, and time in current position (Table 4.28). For liaisons' age, only one significant association was found. As respondent's age decreased, the likelihood of being very confident in their ability to assist faculty with citation management increased. For time in profession, two significant associations were found. Respondents who had been in the profession longer were more likely to be less confident in their ability to assist with faculty with citation management, but more likely to be confident in their ability to provide faculty with journal impact information. And for time in current liaison position, to significant associations were found. Respondents who had been in their current positions longer were more likely to be less confident in their ability to assist faculty with creating data collection instruments or to assist faculty with citation management.

Table 4.28. *Spearman's Rho Correlations for Liaisons' Age, Time in Profession, and Time in Current Position and Liaisons' Confidence in Supporting Faculty Research Activities*

Research-Related Activity	r_s	*p*	*n*
Age			
Assist with citation management	**-0.15**	<.001	2437
Time in Profession			
Assist with citation management	**-0.13**	< .001	2477
Provide journal impact information	**0.10**	< .001	2468
Time in Current Position			
Assist with creating data collection instruments	**-0.11**	< .001	2477
Assist with citation management	**-0.13**	< .001	2477

Number of faculty supported. For number of faculty supported, seven significant associations were found (Table 4.29). The more faculty in their supported liaison areas, the more confident respondents were in their ability to instruct faculty on how to locate sources to support their research, assist faculty with properly citing their sources, assist faculty with citation management, provide faculty with citation analysis of their research publications, provide faculty with journal impact information, co-author research articles with faculty, and compile literature reviews for faculty research.

Table 4.29. *Spearman's Rho Correlations for Number of Faculty Supported and Liaisons' Confidence in Supporting Faculty Research Activities*

Research-Related Activity	r_s	*p*	*n*
Instruct faculty on how to locate sources to support research	**0.18**	< .001	2475
Assist with properly citing their sources	**0.13**	< .001	2476
Assist with citation management	**0.13**	< .001	2475
Provide citation analysis of their research publications	**0.14**	< .001	2467
Provide journal impact information	**0.24**	< .001	2466
Co-author research articles with faculty	**0.11**	< .001	2462
Compile literature reviews for faculty research	**0.15**	< .001	2463

Percentage of respondents' position devoted to liaison responsibilities. The percentage of respondents' position devoted to liaison responsibilities was significantly associated with twelve activities (Table 4.30). The lower the percentage of respondents'

positions devoted to liaison work, the less confident they were in their ability to assist with formulating qualitative research questions, provide citation analysis of faculty research publications, provide journal impact information, co-author research articles with faculty, compile literature reviews for faculty research, serve on a faculty member's research team, and assist with development of faculty grant proposals. However, the higher the percentage of respondents' positions devoted to liaison work, the more confident they were in their ability to instruct faculty on how to locate sources to support their research and to assist with citation management.

Table 4.30. *Spearman's Rho Correlations for Percentage of Position Devoted to Liaison Responsibilities and Liaisons' Confidence in Supporting Faculty Research Activities*

Research-Related Activity	r_s	*p*	*n*
Assist with formulating qualitative research questions	**-0.12**	< .001	2480
Instruct faculty on how to locate sources to support research	**-0.17**	< .001	2476
Assist with properly citing their sources	**-0.10**	<.001	2477
Assist with citation management	**-0.16**	< .001	2476
Provide citation analysis of their research publications	**-0.13**	< .001	2468
Provide journal impact information	**-0.19**	< .001	2467
Identify potential grant opportunities for faculty research	**-0.11**	< .001	2462
Co-author research articles with faculty	**-0.17**	< .001	2463
Compile literature reviews for faculty research	**-0.17**	< .001	2464
Serve on a faculty member's research team	**-0.16**	< .001	2456
Assist with development of grant proposals	**-0.12**	< .001	2471
Serve on a faculty member's grant team	**-0.11**	< .001	2463

Quantitative Results Summary

Analysis of the data collected through an extensive survey offers insight into the work performed by academic liaison librarians and reveals a number of significant findings for factors associated with liaisons' work, liaisons' perceptions of the faculty-liaison relationship, and liaisons' confidence in their ability to support faculty research activities.

Liaison work. The most common types of work performed by liaison librarians are collection development, instruction services, and research support, all of which were selected by more than 87% of respondents. Most respondents reported engaging in either all four types of work or three types of work, indicating that liaisons' positions are very multifaceted and rarely one-dimensional. Significant associations were found for 11 out of the 17 factors explored. Outreach, with eight, had the most significant associations with organizational and individual liaison factors, followed by research support with five, collection development with four, and instruction services with three. No factor was associated with all four types of work, but Carnegie classification was associated with three out of the four (all but instruction services).

Liaisons' perceptions of liaison-faculty relationships. Overall, most respondents had a positive view of the relationships they have built with faculty in their liaison areas. Some aspects of their work were more of a concern for their ability to build relationships than others. Many respondents did feel that their other job responsibilities interfered with their ability to build relationships with faculty and many felt they had limited contact with some faculty in their liaison area. Most respondents also felt that they were welcomed and treated like peers by faculty, though a large number also felt that some faculty treated them like a subordinate. And while most respondents overall were satisfied with the relationships they have built with faculty and felt positive about their relationship-building experiences, most also indicated that it could be difficult to build relationships with faculty and worried about their ability to do so.

Relationship of organizational and individual factors to liaisons' perceptions of faculty-liaison relationships. Significant relationships were found between most of the

factors explored in the survey and liaisons' perceptions of faculty-liaison relationships. The factors that were associated with most of the relationship statements were the disciplinary focus of respondents' supported areas (nine associations) and the percentage of liaisons' positions devoted to liaison responsibilities (13 associations).

Discipline focus of liaisons' supported areas. Significant associations for discipline focus of supported liaison areas were found mostly for statements related to effort and workload (time spent building relationships; number of programs supported) and treatment by faculty (feeling welcomed, like an equal partner, like a peer, feeling respected). Within these associations, differences were found mostly for those supporting STEM and Professional Programs, with those supporting STEM more likely to express more negative faculty relationship-building experiences.

Percentage of respondents' positions devoted to liaison responsibilities. Significant associations found for the percentage of respondents' positions devoted to liaison responsibilities were mostly related to time, effort, and workload, including whether liaisons felt they spent a lot of time building relationships, whether they felt their other job responsibilities interfered with their ability to build relationships with faculty, and whether they had limited contact with some faculty in their liaison area. The trend for respondents was for those who devoted less than 25% of their position to liaison responsibilities to be less likely to agree with positive statements and more likely to agree with negative statements.

Individual relationship-building statements. While all relationship-building statements were significantly associated with at least one factor, some statements had more significant associations than others. The statement *My knowledge of their subject*

area helps me to build relationships with faculty in my liaison area was significantly associated with ten out of the 16 factors, including Carnegie Classification of liaisons' institutions, discipline focus of liaisons' supported areas, and having undergraduate and post-graduate degrees related to liaison areas supported. The statement *Overall, I am satisfied with the relationships I've built with faculty in my liaison area* was significantly associated with seven out of the 16 factors including age, time in the profession, time in the field, and liaisons' institutional status. And two statements were significantly associated with six factors: *I spend a lot of time building relationships with faculty in my liaison area* and I *am an equal partner in the relationships I've built with faculty*. These statements factored into the development of the interview protocol used for the qualitative phase of the study.

Liaisons' confidence in supporting faculty research activities. Overall, respondents expressed low levels of confidence in their ability to support most faculty research activities, with 18 of the 31 activities receiving a median score of two, or *somewhat confident*. The three activities that received a median score of one, meaning *not at all confident*, were related to data analysis, research data security, and research data sharing/use. Only two activities had a median score of four indicating that respondents were *very confident* in their ability to instruct faculty on how to locate sources to support their research and assisting with properly citing sources – two activities seen as common for librarians. The eight activities with median scores of three, or *confident*, were also common activities for librarians to engage in, including those related to copyright, open access publishing, institutional repositories, citation management, citation analysis, journal impact factor, and compiling literature reviews.

These results suggest that liaisons' confidence in supporting faculty research may be related to whether the research activity is one that librarians have historically engaged in.

Relationship of organizational and individual factors to respondents' confidence in supporting faculty research activities. Significant associations were found between most of the factors explored in the survey and respondents' ratings of their confidence in supporting faculty research activities. The factors that were associated with most research activities were disciplinary focus on respondents' supported areas (23 associations), whether liaisons held an additional post-graduate degree (16 associations), when liaison responsibilities were assigned (13 associations), gender identity (12 associations), percentage of respondents' positions devoted to liaison responsibilities (12 associations), and the Carnegie Classification of respondents' institutions (10 associations).

Discipline focus of liaisons' supported areas. Within the discipline focus of liaisons' supported areas, most of the significant associations were found for activities librarians commonly engage in, including assisting faculty with understanding copyright for their publications, understanding open access publishing options, adding items to an institutional repository, citation management, citation analysis, journal impact factor, and compiling literature reviews. But other activities were also significantly associated with the discipline focus of liaisons' supported areas, including co-authoring research articles with faculty, serving on a faculty member's research team, and serving on a faculty member's grant team, with those supporting areas in the Arts & Humanities and Professional Programs showing more confidence in their ability to support these areas than those in STEM or those supporting areas across multiple disciplines.

Holding an additional post-graduate degree. For holding an additional post-graduate degree and having that degree be related to their liaison areas, there was a combined total of 24 significant associations. Many of the associations for both factors were related to conducting a research study, including formulating research questions, data collection, locating data for research, and data analysis. For both factors, holding the degree and having it be related to the liaison areas supported were associated with higher levels of confidence.

Percentage of liaisons' positions devoted to liaison responsibilities. The significant associations found for 12 research-related activities and the percentage of liaisons' positions devoted to liaison responsibilities were all negative, and indicated that liaisons with higher percentages of their positions devoted to liaison work were more likely to be confident in their ability to support faculty research activities that covered all parts of the research cycle.

Carnegie Classification of liaisons' institutions. Of all the factors explored, Carnegie classification had the most variety of associations with research activities. The activities significantly associated with the Carnegie Classification of respondents' institutions were found in all parts of the research process, from the formulation of research questions and identifying potential grant opportunities, to developing research data management plans and adding items to an institutional repository.

Individual research activities. Each of the 31 research-related activities were significantly associated with some of the organizational and individual liaison factors explored in the survey. The activity with the most significant associations was co-authoring research articles with faculty, which was associated with nine factors including

the Carnegie Classification of liaisons' institutions, the discipline focus of liaisons' supported areas, when additional post-graduate degrees were earned, and the number of faculty liaisons support. Two factors were significantly associated with seven factors: formulating qualitative research questions and providing faculty with journal impact factor information – with discipline focus of liaisons' supported areas found to be significantly associated with both activities. Serving on a faculty member's research team, with six significant associations, was the only other activity that was significantly associated with more than four activities.

Quantitative Results and Interview Protocol Development

While the initial interview protocols developed for use in the qualitative strand of this study were created before data analysis was completed for the quantitative strand, some adjustments were made to the protocols to reflect the quantitative findings. Due to the number of significant findings from the quantitative strand, only the most salient findings were selected for additional exploration in the qualitative strand. In addition, due to the focus of the qualitative strand on faculty-liaison relationships and research collaborations, significant findings from the survey results that addressed these two areas were earmarked as the most important to address further. The final interview protocols are presented as Appendices C and D and the connection between the quantitative survey questions and the interview protocol questions are presented in Table 4.31.

Liaisons' education. One of the overarching factors that was significantly associated with liaisons' work, perceptions of relationships with faculty, and confidence in supporting faculty research activities was education. This factor was explored in the survey through questions related to whether liaisons' degrees (both undergraduate and

post-graduate) were related to the liaison areas they supported and respondents' perceptions of the impact of their knowledge of faculty members' subject areas. In the faculty interview protocol, liaisons' education was addressed with the question *What do you know about your liaison's educational and professional background*? In the liaison interview protocol, this was addressed with the question *What role do you feel your educational/professional background plays in your relationship with your faculty member*?

Factors related to time and effort. Factors related to time and effort were also found to be significantly associated with liaisons' work, perceptions of faculty relationships and confidence in supporting faculty research. For effort, multiple questions were included in both the faculty and liaison interview protocols including *How much effort do you feel you put into your relationship with your (liaison/faculty member)*? Additionally, questions about how the pair met and whose idea it was to collaborate were asked in order to better understand different aspects of effort within the relationship. For factors related to time, both protocols included a question about length of time in current position and length of time as professionals.

Factors related to how liaisons are treated by faculty. Significant results related to how liaisons felt they were treated by faculty were prevalent in the survey analysis results. To address these findings, one main question was included in both faculty and liaison protocols: *Which of the following words best described your (liaison/faculty member) - peer, colleague, collaborator, supporter, assistant, researcher, project manager*? *A different term not listed here?* Both protocols also included a question about the interpersonal dynamics of the relationship.

Librarian and liaison institutional status. Finally, the status that librarians and liaisons have at their institutions were significantly related to liaisons' work, their perception of the faculty-liaison relationship, and confidence in supporting faculty research activities. Questions in the liaison protocol designed to address these findings focused on what status participants had at their institution, what expectations the institution had in terms of teaching, research, and service, and what skills the liaison felt their faculty member expected them to bring to the collaboration. For the faculty interview protocol, there were similar questions concerning status at the institution, institutional expectations in terms of teaching, research, and service, and what skills the faculty member expected the liaison to bring to the collaboration.

Table 4.31. *Connection Between Quantitative Survey Questions and Qualitative Interview Questions*

Quantitative (Survey) Questions/Statements	Qualitative (Interview Protocol) Questions
• What undergraduate degree(s) do you hold? • Does your undergraduate degree relate to any of the liaison areas you support? • Do you hold any additional advanced degrees or certificates outside of your MLS degree? • Does your additional advanced degree (post-graduate) relate to any of the liaison areas you support? • My knowledge of their subject area helps me to build relationships with faculty in my liaison area.	• What do you know about your liaison's educational and professional background? • What role do you feel your educational background plays in your relationship with your faculty member?
• I spend a lot of time building relationships with faculty in my liaison area. • I support too many programs to build relationships with faculty. • My other job responsibilities interfere with my ability to build relationships with faculty. • Some faculty in my liaison area seek me out to build relationships. • I have limited contact with some faculty in my liaison area.	• Whose idea was it to collaborate on research? • How much effort do you feel you put into your relationship with your faculty member?
• I feel my work as a liaison is respected by some of the faculty in my liaison area • I am an equal partner in the relationships I've built with faculty • Some faculty in my liaison area treat me like a subordinate • Some faculty in my liaison area treat me like a peer. • I feel welcomed by some of the faculty in my liaison area	• If you had to describe yourself in relation to your faculty member using one of the following words, which one would you choose and why? Peer, Colleague, Collaborator, Supporter, Assistant • If you had to describe your liaison using one of the following words, which one would you choose and why? Peer, Colleague, Collaborator, Supporter, Assistant
• How long have you worked in a professional position as a librarian? • How long have you been in your current position?	• When did you become a liaison for the department your faculty member works in? • Do you remember when you met your liaison?
• What status do librarians have at your institution? • What status do you hold in your current position?	• What is your current status at the institution?

CHAPTER 5:

QUALITATIVE RESULTS

This chapter presents seven case studies that detail academic liaison librarian-faculty collaborative research relationships, created through qualitative analysis of interview data and collected documents. Also presented are results of a cross-case analysis used to identify common themes found across the cases.

Section I. Case Studies

While the focus of this study is on the liaison librarian-faculty collaborative research relationship, how participants define research varies from case to case. Originally, ten pairs were identified but during the interview process it was determined that three pairs had a classroom-based collaborative relationship rather than a research collaboration. Those cases were written but not included in this study as they do not address the qualitative research questions. Within the remaining case descriptions, the role of research is presented to add clarity to the relationship. To protect confidentiality, self-selected individual and institutional pseudonyms are used. Additionally, while references are made to institutional websites and documents, this material is not cited within the study as an additional confidentiality protection measure.

Cases Overview

The pairs in this study's cases represent an eclectic mix of institution types, institutional statuses, and relationship duration. Three pairs work at Master's Colleges &

Universities, three at Doctoral Universities, and one at a Baccalaureate College. Public, private, and large, medium, and small institutions are represented. Liaisons hold statuses ranging from staff to tenured faculty, and faculty statuses range from adjunct to tenured (retired). Relationship length ranges from four to nearly 30 years. Additional demographic details including who initiated the collaboration and faculty members' discipline areas are presented in Table 5.1.

Table 5.1. *Case Study Demographic Information*

Case	Carnegie Classification	Institution Description	Institutional Status of Participant	Relation ship Duration	Project Initiator	Faculty Discipline	Liaison Ed. Related to Fac. Disc.?
1 Mike (L) Paul (F)	Master's College & University: Larger Program	Large public university	Faculty, Tenured (L) Associate Professor, Tenured (F)	7 years	Faculty	Business	No
2 Margo (L) Beth (F)	Master's College & University: Medium Program	Medium-sized public state university	Tenured Associate Professor (L) Adjunct (F)	6 years	Mutual	English	Yes
3 Ursula (L) CoCo (F)	Master's College & University: Medium Program	Private, liberal-arts college	Faculty, Non-Tenure Track (L) Associate Professor, Non-Tenure Track	5 years	Faculty	Nursing	No
4 Jane (L) Chdine (F)	Doctoral University: Highest Research Activity	Private Ivy League university	Staff (L) Tenured, Full Professor (F)	28 years	Faculty	Art & Architecture	Yes
5 Dolores(L) Suzanne (F)	Doctoral University: Moderate Research Activity	Mid-sized private Catholic university	Tenured, Associate Professor (L) Tenured Full-Professor, Retired (F)	Approx. 10 years	Mutual	Biology	Yes
6 Rose (L) Christine (F)	Doctoral University: Moderate Research Activity	Private Catholic university, liberal-arts focus	Staff (L) Tenured Associate Professor (F)	Approx. 15 years	Liaison	English Lit, Writing Across the Curriculum	No
7 Amanita (L) Mark (F)	Baccalaureate College: Arts & Sciences Focus	Small, private liberal arts college	Administrative Staff (L) Tenured, Full Professor (F)	4 years	Faculty	Anthropology	Yes

Note. (L) = Liaison Librarian, (F) = Faculty Member

Mike & Paul

Overview of the collaboration. Mike and Paul's collaborative relationship takes on two dimensions: one grounded in Mike's role as a liaison and the other grounded in his role as Paul's research collaborator. Both Mike and Paul see their research collaboration as distinct from their collaborative work in the classroom, though Mike feels that his research collaborations with Paul are "organically growing out of the [liaison] work that I'm doing." This case will focus on the research collaboration relationship and the impact of Mike's liaison work on the collaboration.

Role of research within the collaboration. Because their collaboration is based in research it can be viewed as following the traditional research process. There is a specific beginning, identification of the initial research idea, and ending, publication of a peer-reviewed research article. Each member is expected to contribute and bring something "unusual" to the process. But within this project and the relationship, different dynamics are at play, including the professional experiences of each researcher and institutional expectations related to research. Within this case, I show how these dynamics shape not only Mike's and Paul's collaboration but also their relationship.

Institutional setting. Mike and Paul work at a large public university located in the West, nestled near a small coastal city but near a number of major cities. For this case, I refer to it as LPU-W. LPU-W is a *Master's College & University: Larger Program* on the Carnegie Basic Classification System. Like other institutions that share this classification, the focus of LPU-W is on student success and teaching. The core focus of the institution, students gaining hands-on and practical experiences, is ingrained in the work of both Mike and Paul. However, LPU-W's size (total enrollment over

20,000) and recent changes in institutional emphasis have led to increased attention on research production. Indeed, the most recent university strategic plan encourages faculty to both collaborate and complete innovative research, while also indicating additional institutional support for these activities.

The LPU-W Library is considered part of the institution's research areas and works to support the institutional mission by being creative, innovative, and collaborative. Collaboration and making connections across the LPU-W community are a hallmark of the Library, and supporting faculty research through collaboration is emphasized in the Library's most recent strategic plan. Librarians who perform liaison work at LPU-W are known as "College Librarians and Specialists." The website's description of the specialists' role emphasizes expertise in supporting research, course instruction, and collection development.

Mike, the liaison. Mike has worked at LPU-W since 2011, transitioning from a career in community college and corporate settings. His previous position providing research in a corporate setting aligns with his liaison position at LPU-W where he supports the College of Business. He also remains connected to the community through service as a consultant to the local small business development center. Though his corporate background prepared him to liaise with the College of Business, he entered the position with little understanding of the inner workings of the tenure process: "I came from the business world. I had…community college experience and not publishing…I didn't know anything about the process of tenure." While Mike felt he could figure everything out since that is what he'd done in previous positions, he admits that it "was much harder because…academia has a lot more moving parts. There were more pieces to

try to figure out." This lack of experience impacts many aspects of his collaboration with Paul, including how the opportunity to collaboration first arose.

Paul, the faculty member. Paul is a professor in the College of Business and has been at LPU-W for nine years, following eight years at a smaller institution. He earned tenure at his previous institution before coming to LPU-W as an associate professor without tenure; however, he applied for early tenure just three years into his time at LPU-W and has been post tenure for six years. Paul was drawn to LPU-W due to the flexibility of a position that allows him to maintain work-life balance and an institution that allows him to take some risks in his work. This ability to take risks and be creative is highly important to him and something he hopes that increased focus on research productivity in his college and at the institution won't take away:

> While there is a focus and interest in my college on research productivity – I still hope that we're able to not be so dogmatic about it, as to train people to not take some risks, not be creative, not explore…There's that natural pressure for that to happen, even here.

Paul's willingness and interest in taking risks in his work is also directly related to his willingness and interest in collaborating with Mike.

Impetus to collaborate. Mike and Paul knew each other through Mike's role as the College of Business liaison and Paul notes that Mike had been "com[ing] to my class for years." Paul even served on the search committee for Mike's position, so Mike's background and research interests were known to him. Their research collaboration grew out of a shared interest in a topic, though Mike and Paul have slightly different memories of how it started. Mike recalls working to be more visible in his department, what he

calls being "around, doing stuff," and having Paul approach him to "talk about doing something." The conversation that followed, in which each talked about their research interests and the library, led to what Mike likens to a miracle – the idea to look at study spaces within the library within an entrepreneurial context. Paul remembers Mike being the "inspiration for the idea" based on something that he read on the topic that excited him enough to e-mail Paul, and was enough to encourage Paul to look further into the literature. Mike feels he would not have approached Paul to broach the possibility of collaborating on a research project, partly due to a limited view of his role as liaison – discussed later in the case.

Shared interest. Regardless of where the initial idea came from, both agree that a shared interest led to a conversation that led to a full research study. As Mike's research agenda grew, space and entrepreneurship appeared as salient topics relevant to his work that he could explore. Paul's research focus is on entrepreneurs as individuals and he had previously worked on space design projects including a collaboration at his former institution to create an innovative student space in the library. Working on a project that incorporated both space and entrepreneurs seemed logical and ideal for the pair. As Paul puts it, "He's very interested in entrepreneurship. And I…teach entrepreneurship with the students…So, it's kind of a natural pairing."

The need to collaborate. Collaboration in seen as important for Paul and logical to Mike. For Paul, collaboration is beneficial:

> …we only know so much of our own experiences and we need others to kind of tap into how they see the world, and the things they know how to do…I've collaborated consistently in my publications…it's just invaluable to

> have…someone else to help with the…workload, but also to share ideas and to maybe create something clearly greater than…you alone. Which is often necessary given the kind of complex problems and issues we're trying to deal with.

Mike sees the need to collaborate as "understanding…where you need to fill in your…spots that you may not be able to do." But he also admits that when he first arrived at LPU-W he "didn't really understand collaboration in the academic world and why people do it and how they do it." Luckily, this was one type of institutional information Paul was able to provide.

Factors impacting relationship. A number of factors impact Mike and Paul's relationship. Some of these factors are based around status and roles, including how Mike's liaison role is viewed, their institutional statuses, and their differing levels of experience.

Liaison versus research collaborator. Mike and Paul both view Mike's liaison role and research collaborator role as separate, expressing the difference in the roles in a similar fashion. As Paul shares, "…there's this idea of the collaboration and the partnership. And then there's liaison…which is just his role. I see that more instructionally and supporting the students and supporting me in my research." But while seen as different, Paul feels that Mike's liaison role "certainly strengthens the relationship, but also makes [Mike] more informed and current in the…field he supports."

Mike details the "different focus" of the two roles even further:

> …in the…liaison role, we're thinking about learning outcomes. We're thinking about the student experience. We're looking to see strategically how we can work together to get the greatest outcomes out of my class time. When I'm working…as a researcher role…there's…more…broadness to the role. There's different types of expectations that come with that in terms of collaborating on a research project. There's an expectation that…I could bring new or unusual things to the research. I may do some of that within class, but there it's much more…conscribed.

Mike views his liaison role as limited and as such, a possible collaboration barrier:

> I think…okay, this is my role with…my college, with Paul, and all the other colleagues I work with…it's a circumscribed role. And…I didn't really think outside of that role. I didn't really think…oh, these are potential people that I could… work with in terms of research.

This limited view was learned through observation, as a librarian new to academia and to liaison work who took his cues from watching his library colleagues "'cause they're your closest people that you're gonna talk to and look at as a model." His ability to move beyond the traditional liaison role was due to Paul's interest in helping him move in that direction.

Status. Even though Mike and Paul are tenured faculty and see each other as equals, they are aware of the difference in their institutional status and how this translates into a hierarchy within their collaboration. To Mike, Paul was the clear leader within the project: "I definitely saw him as…the lead on…this research, because he…has a lot of

experience in publishing, in collaborating, in academic research." He also acknowledges that Paul was "much more senior," but that he feels he brought passion and interest in the topic to the table. But Paul acknowledges Mike's role and sees a different balance, with Mike as "the corresponding author…he was the lead on the whole thing…I was just more…could help provide that support…"

Even with this hierarchy, they each view the other as a colleague and define colleague using similar terms. Mike sees a colleague as someone who is "working for the same goals…if not the same interests, we have shared interests…and…we're equals without stating it." Paul defines a colleague as an "equal" who has "their own professional identity and they have their own kind of responsibilities. And we find ways to merge and work together." While each mentions the idea of being an equal, the differences in their status and years of experience lend a sense of inequality to their relationship that Paul addresses in his approach to their collaboration.

Social capital. Paul and Mike's relationship is a prime example of how social capital can be shared in an academic setting. In this relationship Paul shares the institutional information and experience that Mike lacks. Mike likens this to Paul not only providing him with missing pieces of the puzzle but also bringing "a number of things to…move this forward, to understand how these things work." He also feels that without Paul he would not have been able to accomplish their type of project:

> ...there was no way I could buy my way into doing that, because…the logistics and the politics and the…method of writing for academia, for the…internal stuff, and external too…there really wasn't a way to pull that all together without having someone who…was really with you.

From Paul's perspective, it's about sharing when you are able:

> You see the other person is this human that's trying to make it…if there's a way you can share something with them that might help them get through that current hurdle, or even just have someone to…express what they're feeling or doing at that time… maybe you can help.

Paul's sharing of his social capital is done strategically, as seen in the decision to list Mike first on their article and again on a recently submitted grant application:

> While we're equal partners on these things, we put him first for something like [the grant application] to make sure that people see that…we need to help lift him up…He put my name first initially. He didn't question it. And then I told him in an e-mail before we submitted, "Hey…we need to go ahead and…put you first."

Paul's actions are based on recognition of his more senior standing at the institution and within their relationship, and the need to ensure Mike's role is clear to others: "We need to…make sure that Mike is seen as…the strong…equal… collaborator that he is."

Being a mentor. While not formalized, Mike and Paul's relationship is one of mentor and mentee. Paul feels being a mentor is a natural role he takes on within his professional life and something he "like[s] to make space for." But Paul also feels he benefits from his relationship with Mike, something he does not equate with previous mentoring relationships. Mike agrees that Paul serves as an informal mentor in many ways, "…fostering me and helping me to…do something new and different…we didn't make it formal and say, 'I'm the mentor'...but it definitely felt like that."

Division of labor and project responsibilities. The division of labor in their project allowed Mike and Paul to take on specific responsibilities based on their

expertise, while also sharing some responsibilities. For the research article, Mike describes doing "the heavy lifting on the…lit review and…some pieces of the analysis and the conclusion. And [Paul] would focus on sort of the middle, math-y chunk." For the project overall, he describes Paul as shepherding the project through IRB and dealing with the logistical aspects, while he managed the student worker. Paul provides a similar description but includes his coverage of "…what's been documented in business and entrepreneurship, leadership, management, and marketing around this topic." He also emphasizes the areas they both worked on including the theory, cleaning up the document and the overall review process. Their ability to easily describe their roles in their collaboration, especially in completing the article, exemplifies their ability to communicate well.

Communication. While neither mention communication specifically as important for their collaboration, the way they talk about their project and the process they followed hints at the importance of communication in contributing to their ability to complete their work. Mike mentions that for initial project development, they "were able to talk and it…wasn't difficult…we weren't prickly with each other." Paul describes this as "a natural conversation that kind of builds its own momentum…'cause we can just talk about it and make sense of it together." Their communication is marked by their responsiveness, a trait that Paul values in collaborators like Mike, "whereas, I have other projects, it's…empty space…you do your part and then you don't hear from 'em…and nothing happens." He also recognizes his own responsiveness: "Yeah, [Mike] sends something to me, but it's not something I put off, it's something I just go ahead and get it done and get it back to him right as soon as I can." Another aspect of communication is

Mike's integration of Paul's sayings into his own vocabulary. During his interviews, Paul describes data analysis as looking to "see what would light up." Mike smilingly repeats this phrase during his interview, attributing it to Paul, but later using it himself when talking about their project. This was an interesting example of some of Paul's influence on Mike.

Relationship dynamics. Mike and Paul both talk about factors that influence their ability and willingness to collaborate with each other. Some of these factors are inherent in their collaboration styles, including how they view each other and the traits they look for when identifying a collaborator; while others, like trust, are factors that have developed throughout the relationship.

Personality traits. Mike and Paul describe the other as nice when talking about their relationship and working together. When asked if he had anything else to share about his relationship with Mike, Paul says, "You know, he's a nice person." And Mike, when asked what makes him want to continue working with Paul, leads with "He's always so nice. He's really nice." He offers further evidence of Paul's "nice" personality when recalling how Paul treated him within their collaboration, despite the difference in their levels of expertise: "The wonderful thing about him is that he's very encouraging and positive. And he never made me feel like I was…secondary at all." This allowed Mike to feel comfortable enough to "put stuff out there and…feel like I'm not judged."

***Collaborator traits*.** Both have a clear view of what makes someone a good collaborator, especially in relation to their relationship. Paul emphasizes that he's not looking for himself when he's looking for a collaborator; but he is looking for someone who can "contribute something theoretically…someone who's really responsive and gets

back to you and does the work." In his opinion, this describes Mike who, compared to others he has collaborated with, "works hard." Mike feels he brings passion and interest in the topic to their collaboration, and is committed to the work and willing to try something new. But he also emphasizes the importance of "wanting to get it done" and "mov[ing] things forward as quickly as we can." Paul also emphasizes project completion and refers to himself and Mike as "the dynamic duo…because… once we [got] working…everything synced so that we kept it moving and got it done."

Trust. Mike expresses how important it was that he trusted Paul, especially considering where he was in his career and his need to produce work with impact: "…things just kind of clicked together, and I think that wasn't by accident. I think that was by his design and my willingness to sort of go with…it…and sort of trust that it was gonna be okay." But he feels their trust was mutual since "we trust each other, and trust each other to follow through."

A risky collaboration. Paul and Mike's research collaboration has an overarching sense of being risky in multiple ways. For Paul, the risk was due to a number of factors, including the project's exploratory nature and where their research article was published:

> …we didn't know what would light up…so that was the sort of unknown and exploratory…But then…we publish a paper…but it's not necessarily in a business journal, even though it's a business topic. So, there's kind of a risk there, that [the department maintains] certain lists of what we considered journals of recognized quality, and it doesn't include those in other disciplines…

But Paul feels he could take the risk because of the nature of his institution and because he is further along in his career. For Mike, most of the risk was related to the uncertainty of the project's outcome and whether they would get published or not, as it came during an important time in his push towards tenure.

Impact of collaboration. Mike and Paul see their research collaboration as beneficial though the specific benefits are very different. Mike views their collaboration as a boost to his career, since it "came at the end of my tenure…process…like this wonderful jewel on a crown…I'd done all these other things and then there was this…one with like human subjects, peer reviewed journal…monies that we got. And everybody's looking at that." He feels peer-reviewed publications are "less ambiguous" and leave "less for interpretation" when trying to meet institutional expectations for faculty members. He expresses gratitude for Paul's willingness to support him: "I feel very lucky…that we found each other and that he sought me out to really give me a chance, 'cause…I…was really untested…in many ways…it's a very generous thing to do that."

Paul agrees with Mike's assessment of their collaboration's impact and feels "it definitely benefited Mike to…publish…in a very discipline-specific journal and so, I definitely think it helped …him professionally." And while Paul admits that their publication "actually doesn't really count for me…it fills in the portfolio…it becomes an enumeration and it doesn't make the number go up right away," the attention that their work received was impactful to him:

> And it got a lot of attention, 'cause not all my research gets attention…and our work should have impact…should be cited…you hope that it…gets people

interested…people have contacted us because of that work. And…we've benefitted from it, but it's nice to know that others have too.

Future collaborations. Following their successful research collaboration, Mike and Paul took a break before considering future research. Much of this was due to Mike feeling that he "needed a little bit of a breather" following the intensity of the tenure process, followed by a sabbatical he used to write a book. As he says, "It's really great to work with [Paul], I just needed a bit of a break." Paul had already expressed an interest in working together on another project but understood Mike's need to step away for a bit since "now that he's tenured, he's got a lot more responsibilities." He also mentions his own workload with other research projects. However, recently they both felt they had the time to embark on another collaboration to investigate a new methodology related to their research into entrepreneurial students' use of space. Both are very excited about the prospects of the new collaboration and expect the same positive outcome as their first research collaboration.

Margo & Beth

Overview of the collaboration. Margo and Beth's on-going collaborative relationship began five years ago with Margo team-teaching in Beth's English Language courses. Over the years, this collaborative relationship has evolved to include opportunities for research-related presentations and publications that showcase their collaborative work. Given their institution's emphasis on collaboration, it is not surprising that they are highly collaborative in their work within their own departments and across campus. In that sense one can view Margo and Beth's collaborative

relationship through an institutional context and the factors that can impact successful collaborations.

Institutional setting. Margo and Beth work at a medium-sized public, state university in the Midwest. For this case, I refer to it as MPSU-MW. MPSU-MW is a *Master's College & University: Medium Program* on the Carnegie Basic Classification System. Like other institutions that share this classification, the focus at MPSU-MW is student success, as outlined in the institutional mission. They consider teaching rather than research to be the focus of the institution, though "teaching" does not appear in MPSU-MW's mission or core values. What does appear is "learning" and, first on a list of core values, "collaboration." Research does not appear anywhere within the institution's mission, core values, or strategic plan. Instead, faculty efforts to experiment, be creative, team-teach, work across disciplines, and collaborate are encouraged and supported.

While the MPSU-MW Library is linked from the institution's main page, there are no direct mentions in institutional messages or planning documents. Supporting research, student learning, and teaching are part of the Library's vision and core values; and being a partner to faculty ranks high in their list of goals. Librarians who perform liaison work at MPSU-MW are referred to as both "Subject Specialist Librarians" and "Library Liaisons." The website description of the liaison program emphasizes liaisons' roles in forming relationships with teaching faculty to enhance communication and improve services and support offered to the different academic programs.

Role of collaboration in work. Both Margo and Beth feel that collaboration plays an important role in their work. For Margo, collaboration "refines what we do all the

time," referring to how the library is able to use the data being collected through classroom collaborations to improve information literacy activities and assess the Library's overall impact. Margo also expresses a preference for collaborating on conference presentations, feeling that it makes them "a lot more energetic and it breaks things up" while also allowing her to "give a different viewpoint." Beth relates her interest in collaborating to an "interdisciplinary nature," age, and experience differentiation where "people who started a lot sooner than people who've been here for a while…the younger generation is more interested in creating those interdisciplinary connections." Though Margo has been at the institution for some time, she looks to collaborate with others, leading Beth to consider her to be "an anomaly."

Role of research in the collaboration. Initially the research within Margo and Beth's collaboration was centered on students' library research skills. However, Beth's willingness to have Margo visit her classes and experiment with information literacy teaching techniques allowed for a research agenda to be introduced into the collaboration. Margo has been able to use Beth's courses as a guaranteed, steady data collection opportunity and testing ground for information literacy assignments.

Margo, the liaison. Margo has worked at MPSU-MW for 12 years. MPSU-MW is the only academic institution she has worked at as a librarian, after more than 20 years of previous experience based in public libraries, including 18 years as a library director. She also worked as a registered dietitian while working in public libraries. Her liaison responsibilities include the School of Education, first-year experience, college critical reading (developmental programs), and the recently acquired Physical Sciences Department. While the Physical Sciences' responsibilities were initially intended to be

interim, she feels they will become permanent since she has "that background and there's nobody else on staff who can touch the Chem Department." Margo feels that her undergraduate major in chemistry education, biology/general science education minor, and dietitian training prepared her to work with both education and the sciences. She also considers herself as a liaison to "any kids that come in here, because so many academic librarians do not expect to work with children," and relies on experience as a public library children's librarian to work with area elementary and pre-schools.

As a faculty member, Margo has scholarship requirements related to her work but she makes it clear that MPSU-MW is "a teaching institution" and while publishing is "looked upon in a good way…that's not how I'm gonna be judged." A presentation is equal to a publication in terms of promotion and merit and consequently she has pursued more presentation than publication opportunities to share their work. She also feels that it is easier "to talk about things than write them," a view that impacts the work she does within the collaborative relationship.

Beth, the faculty member. Beth came to MPSU-MW in 2012 as an English Department adjunct faculty member. She considers herself "adjunct by choice," as it allows her "the flexibility to do the types of teaching that I wanna do." This flexibility also allows her to teach at another local institution and continue to do international development contracting, something she feels she could not do in a tenure-track position. As an adjunct, Beth does not go through the tenure process, but feels "the adjuncts do still follow along with many of the tenure…procedures, in terms of university service, publications, presentations. We do get evaluated and those things are on our evaluation sheets." For publishing and research, Beth considers herself to be "more of an

interdisciplinary spirit," choosing to work closely with people outside of her department and focusing her research on the creation of interdisciplinary courses.

Collaboration initiation. Their collaboration began in the classroom, when Beth contacted Margo for suggestions on how to teach information literacy in the 100 and 200-level English courses that fall under Margo's umbrella as a liaison. Beth was encouraged by faculty in her department to reach out to Margo:

> I remember coming here to teach and a few of the faculty…said, "Oh, have you worked with a librarian yet?" And I was like…"No… I was just gonna teach students information literacy on my own. I know how to use the databases"…And they were like, "No, no. You should go see a librarian."

Beth feels these faculty were suggesting she work with a librarian to get a vacation from teaching, an idea she was uncomfortable with. She remembers sending Margo an e-mail asking, "Hey, do you wanna work with another faculty?" and Margo inviting her to meet.

What started as Beth thinking Margo would just give her a few suggestions about teaching information literacy turned into Margo team-teaching in Beth's class:

> I remember meeting her in her office and I was just like…"Do you have any suggestions on how I should teach information literacy?" And…she just avalanched me with her amazing ideas about citations, about gauging source effectiveness, about testing materials. And I was like, "Oh, this is excellent." So, then we just looked at our schedules, decided that we wanted to do team teaching. I didn't want her to just have to do it, or me to just have to do it if…we were willing to do it together.

Margo recalls Beth being enthusiastic about their potential for collaboration and willing to let her expand the typical 50-minute instruction session into a series of hands-on activities that would involve the liaison visiting the class more than once.

An evolving collaboration. From this initial collaboration, Margo and Beth's relationship continued to evolve, in part due to opportunities offered by library assessment projects like a homegrown information literacy tutorial built on course management software. This tutorial offers faculty a way to teach and assess information literacy skills and provides the library with quantitative data to assess the impact of the tutorial and in-class active-learning sessions on students' information literacy skills. Margo considers Beth to be "one of the major players" in the project as they "have developed the activities together. We've seen what activities have worked. We've tweaked them. We've moved on and then I've been able to try in other classes." Beth also contributes to the project by collecting statistics on how well the tutorial is working with her students. They both hope to publish on this aspect of their collaboration since, as Margo states, "Beth wants to write on the [tutorial] stuff."

Collaborator traits. Both Margo and Beth look for specific, though distinct, traits when identifying possible collaborators. Margo "look[s] for the faculty who love us no matter what," meaning faculty who "will let you fail." These are the faculty she is able to make a connection with and who are encouraging even if what she attempts for their class doesn't work. She uses her instruction collaborations to gauge whether she has discovered a faculty member open to deeper collaboration:

> You begin to sense that when you're working with them. Whether…you can move on with them and try new stuff…or whether you're just gonna do what they

> ask [you] to do…you see how the students are responding and how they're reacting, and what they're doing – whether or not you're gonna take it to the next level and say, "Hey, I've got some ideas, let's collaborate together and make this work."

Beth looks for collaboration opportunities with those who are interested, available and willing, particularly in other disciplines. Even though she teaches in the English Department, she feels that having a PhD in the social sciences "makes it easier for me…to interact with people in different disciplines, 'cause we probably have more to talk about than someone who is really…deeply ingrained in…British literature." She looks for "people whose brains can go in different directions, can just deviate off the path and then come back and find interesting things." Beth regards Margo, with her "science-y" background, as one of those people.

Identifying collaborators. Margo and Beth take advantage of service activities and attend campus events to identify potential collaborators. Beth often looks for potential collaborators from the campus interdisciplinary committee, reasoning that "if they're joining that committee on their own accord they're interested in creating some sort of relationship with other departments." She also attends campus events to meet other faculty in those settings where "you go out and…have a drink afterwards, you grab a coffee…[which] leads to research projects and things that actually begin to happen in the classroom." She considers these types of relationships as more organic than those that may be forced by other factors, such as departmentally assigned projects. Similarly, Margo uses her service activities and efforts to be visible on campus to identify potential collaborators. Her dean encourages participation in campus-wide committees "so that we

meet faculty, build those relationships." This method of identifying potential collaborators seems to work for Margo: "…I'm out meeting people in committee work…we'll connect and they will ask if there's a class that we could run together."

Choosing to work together. While Margo and Beth do not work exclusively with one another they enjoy their collaboration. Margo appreciates how organized and prepared Beth is, something she feels translates into Beth's students being prepared for instruction sessions. She also appreciates the classroom dynamic created by Beth's interactive teaching style that is "less lecturing sage on the stage or talking head" and more open "to try new things." She compares this to classrooms where faculty are more "cut and dried…they have a different relationship of "I'm the boss, you're not." I can go into a class like that, but I only want to do it once." Beth appreciates a number of Margo's traits, including her flexibility and follow-through when adjusting to students' needs within her instruction and when scheduling instruction sessions. Margo also identifies her ability to "flex if I need to" as a trait Beth likely appreciates.

Shared interests. Margo and Beth also enjoy a shared interest in student success. For Beth, students are at the forefront of her mind when she's considering what collaborative projects to undertake and notes the shared interest she and Margo had in "helping first year students…understand research and writing" as a motivating factor for their work. Within the classroom she feels they are "always adapting based on the students' needs." They also identify their shared interest in student success as a reason they want to work together. Margo describes how Beth knows "that if I'm coming in, I'm gonna give it my best, so that the students… genuinely sense I'm there 'cause I care about them and I really want them to learn this stuff." And Beth feels her interest in

student success, “not even just…learning the English thing that they need to learn on that day, but…having them succeed in college and life,” is one reason Margo wants to work with her. Margo confirms this noting that Beth “genuinely cares for her students and it shows through in just about everything that she does.”

Collaborative relationship roles. As their collaborative relationship has evolved, so have the roles they play within the relationship. Initially, Margo had more experience at MPSU-MW and in academia, so Beth looked to her as the leader in their relationship: “So, it started with really her having the great ideas…for those first couple of years where I was still getting my footing and not sure what was going on or what my goal was.” But she feels that “now, we’ve …built everything together” and “it’s more of an equal partnership” where their roles are “split into our strengths…she definitely takes the lead when we’re doing conference presentations… whereas I’ll maybe take more of the lead on...the academic background, writing things up more formally.” Beth echoes Margo’s view that Margo is “a little bit better at the public speaking, and I’m a little bit better at the writing.”

Margo feels this reliance on their strengths is one of the reasons they “pair up well, ‘cause she’d like to do some publishing, and…I’m really not sure how to get started doing it.” This balance allows them to pursue presentation and publication opportunities equally, since they know one will be able to take the lead while the other provides support. This balance also speaks to their view of the other as a collaborator, the term both select when presented with a list of words to describe the other within their relationship. They also give similar definitions of collaborator. In her definition, Margo emphasizes being equal in terms of contributing “time and talent and energy into

something…both of you coming in on…equal ground…both taking it seriously and you're both bringing stuff to the table." Beth's definition focuses on having "the same passion in terms of teaching and learning, helping the students…creating…academic results…tangible things."

Expectations of the liaison's role. Margo and Beth have a similar view of what Margo can bring to their collaborative relationship as a liaison now, but this was not always the case. Beth admits that she had little contact with librarians as a student and this may have impacted her understanding of what a liaison could do:

> Honestly, I thought it was just gonna be like an overview of the physical library in our specific university. I didn't think it would lead…more into understanding the point of a library in college, the point of a library in life…information literacy…how this applies to different things.

After years of working together, both agree that Margo brings information literacy expertise to their relationship, including, as Margo describes it, "how to make it hands-on and…transferrable." The application of Margo's expertise is regarded as a distinctive feature of the collaboration and frees up Beth from teaching these skills to her students. As Beth put it, "It's just something that you don't then have to re-create, reinvent the wheel as an instructor, when there are people who are doing the same things." She also feels that Margo and other liaisons go above and beyond teaching information literacy:

> Not only can they help you integrate information literacy into your class, but they can take it to a whole new level. They can teach you different pedagogies, they can teach you different styles to integrate not only information literacy but any

aspect of English or Library Science into your courses. They can be innovators, collaborators…

Liaison's expertise and education. Beth does not connect Margo's educational background to her ability to be an information literacy expert in her courses. She didn't know anything about Margo's background, only caring that Margo was willing to work with her: "I just went with it and I was like, "Alright, you're willing to work with me? I'm gonna take it and see how it goes." And then, of course, it went amazingly well." While Beth notes her educational background "probably wouldn't matter so much with Beth" and doesn't "think Beth would ever look down on me," she recognizes that it might matter to other faculty. She actually feels her educational background helps combat their concerns: "I have the educational background to be regarded as a faculty member here… professionally…it gives me the standing to be able to go into a professor of English's classes…with content that they don't necessarily master." Even so, she recognizes that not all faculty acknowledge her expertise, which makes her more appreciative of faculty who don't stress that she *only* has a master's, or who don't see her as "*only* a babysitter."

Role of communication. How Margo and Beth communicate exemplifies the equality and level of comfort they feel they have in their relationship. Margo emphasizes the importance of equality within their communication:

> You have to set up an atmosphere where both sides have a chance to talk. If I were to be the only one coming in with ideas and I'm trying to give these ideas…the relationship is no longer 50/50 if someone isn't coming back to say, "Well that's great – have you thought about…" or "Hey, I noticed my students last time, this is something they picked up on. What can we work on together?"

She also emphasizes how they "talk back and forth if…we're having a bad day or if there was a bad class or something. We just talk about it together, figure out what needs to be done, and go on. It's the…ideal collaboration." And Beth mentions the "ease of communication" they share, where they e-mail each other late at night or text because "it doesn't have to be a nine to five kind of colleague relationship."

Personal relationship. Their professional relationship has also transitioned into a personal one, something that Beth notes: "I knew that we would become friends…after our amazing sessions…we'll grab coffee and… continue to talk about how we can make our classes better." They also talk about how comfortable they are with each other and the lack of pressure and effort in the relationship. As Beth puts it, "being able to work with each other without any pressure, without any sort of necessity…we're not doing it because we need it for tenure or promotion or anything like that. It's just because it's fun and we like it." She also notes that their relationship is "so easy," a sentiment Margo shares when she notes, "I don't think there's effort."

Trust and respect. Trust and respect are present in their relationship. Margo talks about trust going both ways, as she trusts Beth's classes and Beth trusts her "not to take 'em down the wrong path." Beth's trust in Margo and respect for what she can do is seen in her willingness to send her students to her when they are in need, and to recommend Margo to "colleagues who I know wanna do something innovating and interesting" because she trusts her to follow through and accomplish the work. Margo feels the respect is mutual and something "you're aiming for. That's the mark of collaboration…the respect for each other."

Impact of outside factors. While most of the factors impacting Margo and Beth's relationship can be classified as internal, two external factors also appear to play a role: institutional status and work environment.

***Impact of institutional status*.** Institutional status plays a role in their collaborative relationship, with Margo's tenured professor status and Beth's adjunct faculty status existing at opposite ends of the faculty status scale. Beth has seen instances of her status acting as a barrier to their collaboration:

> …if Margo and I come up with a really innovative team-taught class in information literacy, sometimes…the tenured teachers will be like "Well, wait, this adjunct can't teach a new class. They have to teach the classes that exist, and I get to teach a new class." But…*I* made the new class…it doesn't matter.

She acknowledges that "Margo gets a little bit farther just because she is like a full-time professor," allowing her to accomplish things on campus that Beth cannot.

Margo acknowledges the importance of status when asked what she would do to continue supporting Beth's research and work if she had no restrictions: "Well, obviously, be sure she was a tenure-track faculty member…I don't think it will ever happen, but that's what I would do if I could. It definitely would change her status. As an adjunct you don't have any [status]." She also feels "like the adjuncts are considered to be less valuable by some members of the [English] department." And, while "there are some terrific tenure track faculty" who see the adjuncts as colleagues, "not everyone will." While adjunct faculty have a lower status on campus, Margo believes librarians at MPSU-MW enjoy working with them:

> ...the adjunct faculty are often the ones most willing to experiment, try new things…They are looking for partners. They are looking for collaboration, where sometimes once somebody's been tenured and moving up the promotion track, they tend to think…they've got it all under control and are less likely to reach out…

Impact of work environment. Margo and Beth have different work environments. Within the library, Margo has a close relationship with her departmental colleagues, describing an open-door style of work where colleagues can just drop into each other's offices to discuss a new project idea. While she expresses some concern about physical barriers to working with librarians in other departments, she makes an effort to reach out to these colleagues to keep them in the loop. And there are few concerns about liaisons working with faculty in another liaison's area (though if issues do arise, she feels she is able to "work that out with anybody else who's there"). Within this environment, she is able to collaborate with her colleagues across liaison areas and even team-teaches with other librarians. She feels this highly collaborative environment encourages librarians to be adventurous, and makes her "more confident to reach out to faculty and try that too."

Margo regards her work environment as mostly positive but does not feel that Beth's work environment is as supportive: "What she needs…is a spot where she can really make a difference and not have people go, 'Oh, you're working too hard, you're making us look bad.' That's a horrible working relationship." Beth's work environment contributes to her preference for collaborating outside of her department. She feels because of how large the English Department is, she "can really do what I want…work

with the faculty who I like the best, and who have similar teaching styles to myself." But, this also means that "it's so large that…people aren't necessarily interacting as much."

A mutually supportive relationship. After five years, Margo and Beth have formed a relationship that Margo calls "mutual" and Beth calls "mutually supportive." This relationship has transitioned beyond colleagues, into a relationship where each is considered a friend and in many ways like family. Margo considers Beth amongst a group she calls "almost daughters" and Beth refers to Margo as "university family…a work colleague who has transitioned past [colleague] and is also a friend." To Beth, this mutually supportive relationship means that if Margo needs her assistance, all she has to do is ask and Beth will say yes:

> If she does…apply for a conference, I'm gonna go…I'm gonna speak at it. If she asks me to speak at the university…I always do it. I'm never gonna say no. So, I think we both appreciate the fact that we're there for each other, and we know at this point that we're gonna be there for each other. She doesn't really need to give me…months in advance…it's just gonna happen.

Margo expresses a similar sentiment when indicating that for Beth she would be willing to relax her rule that faculty must attend scheduled library sessions:

> We refuse to do classes if…the faculty members are not there…Now [if] Beth has a conference and has no other way to do that? Cause we have a relationship, that's a totally different matter. Somebody…calling me…and I've never met you before, says "I have to be gone, you'll take a class." We say no.

Future collaboration. Margo and Beth see their collaborative relationship as continuous so future collaborations are possible, most likely within the classroom where

they have already achieved much success. Margo mentions the need to continue looking at their in-class activities and at the different activities they recently piloted in Beth's classes. And Beth notes that "there's a lot we wanna do quantitatively with the data we've collected." Margo also recalls her excitement about a recent collaboration they embarked on with MPSU-MW's archivist and wants to see where it will lead "because what we've tapped into is the students' passion for a topic." And Beth sees a future for their collaboration "writing a few papers on English faculty-library coordination, collaboration."

Ursula & CoCo

Overview of the collaboration. Ursula and CoCo's collaborative relationship began when CoCo asked Ursula to work with her Population Heath course students. This prior connection and similarities between CoCo's research focus (health literacy) and Ursula's knowledge area (information literacy), provided opportunities for an extended collaboration beyond the classroom. Over the past five years they have collaborated on various research publications and presentations, and have another project underway.

Role of research in the collaboration. Research plays an important role in their collaboration and most of their current work focuses on shared research interests. While research is not required for maintaining their positions, they both express an interest in completing research. But while CoCo finds avenues of institutional support for conducting research, Ursula encounters barriers. These institutional differences in support are amongst the factors that influence their collaborative relationship.

Institutional setting. Ursula and CoCo work at a private, liberal-arts college on the East Coast. For this case, I refer to it at PLAC-E. PLAC-E is a *Master's College &*

University: Medium Program on the Carnegie Basic Classification System. Like other institutions that share this classification, PLAC-E focuses on educating students, with a small faculty to student ratio. PLAC-E also prides itself on offering a combination of liberal arts education and career-directed programs. PLAC-E's most recent strategic plan emphasizes the impact of changes in higher education on the institution's current priorities, but suggests a time of transition as they work to address these priorities.

The Library at PLAC-E is an academic resource whose mission is to support student research, skills, and critical thinking development while emphasizing collaborative partnerships with college faculty and fostering institutional relationships. PLAC-E librarians who perform liaison work are referred to as "Library Subject Liaisons." Website information about Liaisons highlights their role as academic partners who assist with information literacy instruction, resource location, collection development, and scholarly research.

Ursula, the liaison. Ursula has worked at PLAC-E for over 30 years in various positions, including six-years as library director. She is responsible for the Library's liaison program, implementing it during her time as director. Before PLAC-E she worked in public libraries in both public and technical services and has held positions in both areas at PLAC-E, including 11 years in her current technical services position. She is an Associate Professor with faculty status that she feels is respected at PLACE-E. This status allows her to work on campus-wide committees and take on "a number of different governance roles that…have been helpful to me in understanding how things work."

Liaison responsibilities. Ursula's liaison work has changed based on the Library's needs, but started with an assignment as the English liaison. She is currently

liaison to the School of Nursing, one of the biggest and busiest programs on campus, and works with the Education Department's community health and wellness major. As her educational background is not related to these areas she describes how she became Nursing liaison:

> I remember the…librarian who had been the nursing liaison for a long time retired. And…we had…a new person coming in, and…[someone] said, "Why don't you take nursing for a while until this guy gets his legs under him a little more?" And then it never went away.

Workload. Ursula balances her liaison role with technical services' responsibilities and work with campus first-year initiatives. Changes in the Library have also created short-staffing situations, leaving Ursula and other librarians to take on clerical tasks normally covered by staff. She carries a heavy workload but is still an active liaison who strives to be flexible and available. She regularly communicates with her faculty, creates course and research guides, maintains a presence in Blackboard course sites, and meets with students. Where her workload may negatively impact her liaison work is in her ability to seek out new faculty – something she is not able to devote as much time to as she would like.

CoCo, the faculty member. CoCo joined PLAC-E in 2012, just as Ursula became Nursing liaison. She is an associate professor in the School of Nursing and coordinator of the BS to RN program. Her previous experience in academia includes clinical/instruction and administrative/instruction positions, including a clinical position at PLAC-E. Her experiences at other institutions and in her Master's program influenced her decision to pursue her PhD and to work at PLAC-E. In her PhD program, she "saw

the challenges of going in a tenure-track at a university" and decided she wanted to "be in a place where teaching was the focus, but supported the research." CoCo found this in PLAC-E, as well as a supportive work environment that offered her a flexible schedule to complete her PhD.

Research focus. CoCo "like[s] to dabble in research" but wasn't interested in developing a program of research. It was important that she could complete research on her own time without the pressures found at tenure track institutions where "your survival there would be the funding, number one. And then…the publications." Being at a non-tenure track institution allows her to focus on her teaching but still conduct research when she wants to. Research is only required at PLAC-E for promotion to higher ranks. She feels that some research rigor is important in higher ranking positions and that people "should be demonstrating some scholarship." But she appreciates the lack of pressure attached to publishing since faculty choose whether they want to apply for promotion.

Role of collaboration in work. Collaboration is part of Ursula and CoCo's work environments, though CoCo shows an affinity for collaborating externally. Within the Library, Ursula works with two teams in technical services and collection management. She feels that collaboration plays "a big role for me with my tech people" and has noticed a difference in how well the teams collaborate: "Collection management…I feel like we're a collaborative group that hasn't found our groove." She attributes the difference to one group having a "natural curiosity" and more "professional confidence and a willingness to" figure things out.

Collaboration is important to CoCo and something she prefers to do within her work and research: "If you looked at my publications, the only ones where I'm solo

author is [*sic*] related to my dissertation work. So, I always like to at least [work] with another person." Ursula notices this affinity for collaboration and sees CoCo as "the kind of person who naturally makes associations among other people." Like the Library, the School of Nursing tends to work in teams, though CoCo labels these teams as "informal" and they typically involve teaching a similar course. She also works on projects with a School of Nursing senior lecturer, including the ones that involve Ursula. Externally she forms and maintains collaborative relationships with colleagues from her former institutions.

Impact of work environment on research. Ursula and CoCo work in environments that support collaborative work though Ursula's work environment is less supportive of research. She attributes this to a library culture with no explicit expectations for conducting research and no emphasis given to the research efforts of library faculty who engage in research. She describes an environment not structured to support librarian research, where many library faculty do not feel "they [have] the space or the time or the permission" to engage in research:

> I think that we feel that we don't really have permission to do research because…time is so incredibly tight…I know from my nursing colleagues that a lot of their research takes place…outside of their working hours. But they may teach three days a week and then have a fourth day…that is their research day. And we're not even allowed to work from home…we're here five days a week…I've asked to be able to work from home, and…that's been denied each time I've asked.

CoCo's work environment in terms of research support contrasts strongly with Ursula's, as seen in her department's willingness to give her a day off each week to complete her dissertation. She also feels the institution is supportive of research in other ways, including funding conference attendance. The one type of research support that both have access to and have taken advantage of is the sabbatical – time off to support faculty's professional growth, development, and scholarly activities.

Initial meeting. CoCo vaguely recalls how they first met but is unsure of who reached out to whom. Ursula, in contrast, clearly recalls CoCo approaching her:

> CoCo came to see me and she said, "I'm teaching community health nursing and I've found that my students are really doing a poor job in translating the assignment into what I want them to be seeing on their papers…and in their reference lists." So, we started to work together really closely.

CoCo does remember another faculty member mentioning Ursula's work with their section of the Population Health course, an idea she found appealing and likely led her to reach out to Ursula. Regardless of who initiated contact, the needs of the students offered an opportunity for them to make a connection.

Impetus for research collaboration. The intersection of their work in the classroom and CoCo's health literacy research interests led to their research collaboration. Initially, CoCo invited Ursula to collaborate on a nursing conference poster proposal related to their assessment of her students' information literacy skills. This was followed by an article comparing health and information literacy, developed in response to a call for health literacy papers forwarded to Ursula by her library director.

Because of their prior work Ursula knew of CoCo's health literacy knowledge and approached her to collaborate on the article.

Willingness to collaborate. Ursula has formed collaborative relationships with other faculty but recognizes several factors that have allowed their relationship to go beyond what she has developed with others. One of those factors is CoCo's willingness and interest in collaborating with her. While at times she has met with resistance and defensiveness from faculty for even limited levels of collaboration (e.g., "No, I'm not going to add you to my Blackboard site. And no, I don't wanna share my syllabus with you"), with CoCo she finds herself sought out. Some of CoCo's willingness to work with Ursula may relate to prior positive experiences interacting with librarians at different institutions: "I just felt like, 'Wow, they're very giving, these librarians.'…And they just want the best for the students, to be supportive. Very similar to nursing, in a lot of ways…"

Collaborator traits. Ursula and CoCo easily identify traits that contribute to their interest in collaborating, including being responsive, responsible, knowledgeable, open, curious, and having a prior relationship.

Responsive and responsible. Ursula identifies responsiveness and being "professionally responsible" as traits that CoCo likely appreciates. These traits align with CoCo's interest in collaborating with someone who is "gonna be very dependable and bring their 'A' game." She also relates responsiveness and responsibility to not "hav[ing] a lot going on in their life," or at least not having "chronic" distractions. Though Ursula has a busy work-life, she makes the effort to be responsive and complete her work.

Knowledge and expertise. Ursula's librarian expertise is one of the main reasons CoCo seeks her out for research collaborations. Given Coco's focus on heath literacy, a topic connected to information literacy, she regards Ursula as a natural choice for a collaborator. Ursula sees her expertise as the creation of search strategies and understanding information literacy concepts. She readily admits that when it comes to CoCo's research topic (systematic reviews), she "wouldn't even know how to approach" completing one. But her willingness to learn new skills to support CoCo is another liaison trait she feels she has and something she hopes to do more of: "I would like to learn so much more…how to do systematic reviews, integrated reviews." CoCo references Ursula's knowledge and intelligence in many ways and "love[s] the way she thinks and approaches issues."

Openness. Ursula points to CoCo's openness as a trait that allows them to collaborate successfully, associating this openness with CoCo not placing expectations on her liaison role: "Did she have expectations? She may have, but she did not…lay those out to me as expectations." While other faculty often approach her with their expectations, she feels that "CoCo was able to sort of step back from that and…be more…flexible." CoCo attributes this to Ursula's insistence that they sit down and talk about her role in the class: "…she wanted to meet, really go over what her role would be. What were the needs? It wasn't just this fill in, "Oh, we got a librarian coming for a visit" and doing the canned show." While this is her preference, Ursula does not feel she can insist on this conversation – CoCo was just more receptive than some other faculty have been:

> I definitely try to have that conversation…I usually try to express that softly…not to say we *have* to have this conversation, but that I prefer to have this conversation about how we're gonna work together, about what it is they need…where I get to tell them what I have to offer and to see how those can intersect…when I suggested that to CoCo, she was very willing to do that…she saw that as a positive. There are plenty of people who don't see that as a positive.

While CoCo had expectations about what liaisons could do, Ursula's approach to offering instruction and CoCo's willingness to listen kept those expectations from stunting Ursula's work.

Curiosity and problem solving. Ursula feels that having a "share[d]…kind of natural curiosity" is one of the reasons they have worked well together. Even when they discovered an oddity in how articles were keyworded during a literature search for one of their projects, instead of dismissing the oddity Ursula notes they "wanted to know why…is this the case?" CoCo attributes this to them "both lik[ing] to analyze things" and Ursula thinks of it as collaborative problem-solving, something she feels they both enjoy.

Prior relationship. For Coco, having a prior relationship may be the most important potential collaborator trait: "…I'm not gonna just do that with anyone…you don't get into those conversations of doing something like that unless you are really working well with them." She vets her collaborators before approaching them, particularly their work ethic: "…I'm gonna see that they're gonna be working, and working at the same level that I'm working at." Finding someone who is working at the same level is clearly important to her:

> …I know my personality. I don't do well when I think someone's not carrying their weight…and they're just going for the ride. 'Cause I've had that experience…once or twice. I've had a co-publication where I'm like, "Yeah, I won't be doing that again [laughs] with this person."

She is particular about who she invites into her research collaborations and views working with someone she does not have a relationship with as risky. She describes experiencing this risk when she invited a young researcher to join an already established collaboration: "I took a risk with her because I didn't know her...but, I observed her…and I Googled her."

C**ollaboration roles and division of labor.** Ursula and CoCo have taken on many roles within their collaborations. For the health literacy research article, Ursula was the lead author and contributed most of the work to the publication while CoCo served as a reviewer and subject contributor. In their most recent collaboration comparing integrative and systematic reviews, Ursula serves as a sounding board and assists with search strategies – a role she is more comfortable with due to her lack of experience with the topic.

How they divide up the labor in their collaborations often depends on the nature of the work and timing. Due to a shortened submission timeline and CoCo's impending dissertation defense, most of the writing of the first drafts of the health literacy article fell to Ursula with CoCo providing feedback throughout: "What CoCo told me was, 'Listen. I'm not gonna be able to be super active in this…I have my PhD defense…the week before this paper's due.'" CoCo echoes this in her recollection: "'I'm not gonna be able to do the lead'…I said, but 'I will definitely be able to provide a lot of that information.'"

A third person served as an article reader but Ursula completed the bulk of the work and was named first-author, a mutual decision by all collaborators. In their current book project, their third collaborator ensured that they discussed authorship early in the process so that they would not have issues later.

Relationship roles. When presented with a list of words to describe CoCo, Ursula selects four: peer, colleague, collaborator, and supporter. She feels more than one word is needed as CoCo's role has varied based on the different projects. Overall, she views CoCo as a colleague, a term she feels "has real value attached to it…[that] has to do with familiarity, trustworthiness, comfort, understanding." For Ursula, CoCo selects collaborator, and proudly points to the two awards they have won for "Excellence in Partnership and Collaboration" as evidence of Ursula's valued collaborator role. She defines collaboration as having a partnership and "a shared…desire to explore something more fully," a role Ursula fulfills by "working as a team member in collaboration."

Relationship factors. Different factors define Ursula and CoCo's relationship, including communication, confidence, trust, respect, and relationship equity and balance.

Communication. Communication is important to Ursula and CoCo and their ability to communicate well is seen throughout their collaborations. Ursula recalls their communication while working on the health literacy article: "I wrote the first draft. I would send her…what I had written, and she would…slash it up…and we had great conversations." Despite feeling that they each bring different personality traits, she feels they create a good dynamic: "…CoCo is more extroverted than me, and I am more of an introvert. At the same time, I…always feel that when…I am speaking, she is listening… But…I think our dynamic is…relaxed, it's engaged, it's mutual, and it's balanced." How

they communicate also defines their relationship, as Ursula notes they "text each other and call each other, sometimes on weekends." While their communication may be infrequent, both communicate enough to stay up-to-date and each shows a high level of awareness of the other's work. CoCo mentions checking in with Ursula with a question about another collaborative project and how important it was that Ursula was aware of "what we were doing in that article and that publication" so that she could assist them. She also indicates that Ursula has "been keeping me updated" on her current work, so she's "very aware of what [Ursula's] going through."

Confidence. Confidence plays a role in their relationship, particularly from Ursula's perspective: "I really do feel more and more that it takes…a certain level of personal confidence to collaborate." She feels that CoCo has "confidence to be a partner" in their relationship and that it is important that she develop confidence in the relationship to help her be more confident as a liaison. Working with CoCo has allowed her to "develop some confidence to support [CoCo's]…and other's research."

Trust. Trust is another factor found within their relationship. Ursula notes "an immediate sense…of mutual trust" found in her initial meetings with CoCo that continued throughout the article completion. She even associates her view of CoCo as a colleague to CoCo's trustworthiness. CoCo sees the trust in their relationship as her ability to provide Ursula with a sense of safety, as someone Ursula can talk to about situations "where she's meeting resistance, and asking for suggestions." But she agrees that this trust is mutual: "I feel like we can confide in each other…knowing it's gonna be in a very safe place."

Respect. Ursula and CoCo exhibit a lot of respect for one another within their work and the way in which they describe each other. Ursula describes a relationship where they can text and e-mail outside of work and say "Hey, have you got a minute to talk?" But at the same time "I'm respectful of her time, and she's respectful of mine." Similarly, CoCo shares "I don't know if she's gonna have the time…I wanna be respectful of that." She often thinks about Ursula's time and wants to protect her by being careful of what she invites her to do: "I almost didn't…say anything to her, because I wanted to protect her. But then I said, 'No, she has the ability to…figure that out.'" Ursula sees this as an example of who CoCo is: "I feel like she's respectful of everyone in that way…it's one of the things that I value about her."

Equality and balance. Ursula and CoCo talk about their relationship as being equal or balanced, though the level of balance is viewed differently. For Ursula, their relationship is clearly balanced and equal, and she refers to CoCo treating her like a partner. But CoCo feels the relationship is unbalanced in her favor:

> If anything, I feel guilty at times that I don't support her enough…you tend to always want a balanced thing. And, it's not like I can say, "Oh, how can I assist *you"*…it's not reciprocal that way…But she'll say something different, I'll tell you that right now.

Ursula is indeed quick to articulate how much CoCo supports her: "…the way that she's helped me is to make it possible for me to do my job…she has supported me in meeting my professional mission. And she's also supported me…in other ways in terms of personal and professional growth…" Ursula understands why CoCo may feel as she does, saying "it's the nature of the partnership…when you're a liaison from the library to

another area, you really are in a…support role. And that may sometimes not be comfortable for the person on the other side."

Impact of collaboration. Ursula and CoCo's collaborative relationship has benefited both women. Ursula has seen an increase in nursing faculty who she "had not heard from before," reaching out to her. She also has a newfound confidence in her own ability to do research. After completing the health literacy article, she decided to apply for a sabbatical and spent time working on a research topic of her own interest:

> …writing the article was a very empowering experience for me. And I felt that…I'd met a goal. I had proved to myself that I could actually complete an article…that I could see it into publication. That I could work with others in this way…It opened something up for me, brought me to a different level of confidence. And so, when it came time to apply for that sabbatical, I felt like I had permission…to take that step too.

Ursula makes an even stronger statement about the impact of their collaborations when she shares that "It's changed my professional life…I remember the day she came into my office…and something changed for me that day. And, I'm very grateful for it."

For CoCo, their collaboration's impact is seen in the value Ursula's perspective provides and "just the…need for faculty and librarians to collaborate with each other. I don't think people are fully aware of the fruits of that." Another impact is seen in her support of the idea of embedding Ursula into the School of Nursing "where she would have an office and have office hours…having that visible, physical presence to develop relationships with other faculty, they would be looking at her more as part of the team." While Ursula agrees about the possible impact this could have, it's not a possibility

within her current position since she has "many other hats that I wear, besides nursing liaison."

Future collaboration. Ursula and CoCo are working on another project and thinking about the possibility of more in the future. Ursula sees opportunities on the horizon as the School of Nursing expands the program CoCo directs fully online: "…we're gonna be working pretty closely together on that as well." She also wants to "continue to…expand this relationship around other projects as well," including tutorial development related to their classroom work. And while CoCo feels that you cannot always plan for collaborations as they "kind of just come out," her view of how valuable librarians are to her work almost guarantees that she'll find more opportunities to work with Ursula.

Jane & Chdine

Overview of the collaboration. Jane and Chdine have known and worked with each other for nearly 30 years, but their first research collaboration came years into their relationship when Chdine invited Jane to join him on a book project. The success of their first collaboration led to a second one a few years later. While Jane is the liaison for Chdine's department, their research collaborations are outside of her liaison responsibilities and require working beyond her normal work hours. Despite the success of their collaborations, relationship strength, and interest in working together, future collaborations are mostly dependent on factors outside of their control.

Institutional setting. Jane and Chdine work at a private, Ivy League university in the East. I refer to it as PIRU-E in this case study. PIRU-E is a *Doctoral University: Highest Research Activity* on the Carnegie Basic Classification System. As this

classification indicates, research is a priority at PIRU-E, which boasted 2016 research expenditures in excess of $160 million. PIRU-E supports research through centers, institutes, and offices that assist with everything from locating funding to managing research data. The PIRU-E Libraries are considered a key research supporter – though the institutional focus is given to the print collection's size and online material access. Librarians who perform liaison work at PIRU-E are known as "Subject Librarians." The website's description of their role emphasizes research support to students, library instruction, course guide creation, and collection development.

Jane, the liaison. Jane has worked at PIRU-E since 1985, taking a job in the Art Department's Art Slide Library (ASL). An Art History major, she worked in her alma mater's ASL during her senior year and a year after graduation applied for the full-time position at PIRU-E. She did library-type work as an ASL curator, but did not earn her library degree until 1993, urged in part by the Art Department splitting into two separate entities. This split pushed her and others working in the ASL over to the main library so they wouldn't have to "choose one over the other." At the time she had no interest in being a librarian, but now feels earning her library degree "was certainly the best decision I ever made."

Liaison's status and work. Librarians at PIRU-E are classified as staff so Jane's status did not change after earning her degree and moving into a librarian position. She is not required to publish but librarians are "definitely encouraged to be professionally active in whatever way we want to be, whether it's being on committees in professional organizations, publishing articles, anything like that." In her liaison work she supports seven areas ranging from History of Art to Archaeology, and recently picked up

Anthropology due to a colleague's leave of absence – an assignment that is "probably gonna end up being permanent."

She became liaison to the different Art departments gradually following the Art librarian's retirement. She first shared liaison responsibilities with the ASL head curator and when the head curator retired in 2010, Jane became the official liaison. Her liaison responsibilities include collection development, one-on-one student research consultations, instruction sessions, library workshops, outreach, and some image cataloging – a holdover from her ASL position. While she covers a lot of areas, she notes that she has fewer than many of her colleagues; and her areas are more creative in nature, meaning "they don't need research help so much. So, it's not quite as bad as it sounds."

Chdine, the faculty member. Chdine has been at PIRU-E for 28 years, arriving about five years after Jane. He is a full, tenured faculty member in the Art & Architecture department. Originally from Europe, he was a faculty member in his home country for six years before coming to work at PIRU-E. Despite opportunities to return to Europe, he is "very happy" at PIRU-E and feels "the whole system is a little better than in Europe…more fluid, and people are more engaged." PIRU-E offers Chdine "a lot of freedom" in his work and he counts himself as "extremely lucky that I ended up being paid for something that I would love to do anyway."

Faculty work. Chdine's work entails teaching, research, and service. He enjoys having big classes and teaches two every semester. His service includes committee appointments and PhD advising, and his research allows him to "travel a lot and look at architecture and document it, and photograph it, and then talk about it in my classes."

Publication is also an expectation and PIRU-E rewards some scholarly output, like published books, with small raises.

Collaborative work environments. Jane and Chdine enjoy their work environments and colleagues but Jane finds her area to be more interactive and supportive of collaboration than Chdine. The Library's current strategic plan actually includes a goal for increased collaboration between departments. And Jane feels fortunate to share an office with two colleagues that she can talk to "all day long" and feels her work environment is "really great…my whole department is very good about working with one another." Examples of this include collaborating with the Mideast Studies librarian to help a student whose topic spanned both of their disciplines and "ask[ing] each other for help all the time on projects, with questions that we get."

Chdine feels everyone in his department "all get along very well," but they "mostly see each other in faculty meetings, where we work out more…administrative issues." He attributes this lack of interaction to being "in slightly different fields within History of Art and Architecture." Other than "occasional roundtables" where faculty share their work and receive feedback, he wishes his department would do more "in terms of really detailed exchanges of scholarly information." He sees value in getting feedback from others to improve his work and feels his own recent roundtable participation led to "a much better lecture in the end."

Role of collaboration in work. Jane and Chdine see collaboration as part of their normal work, though it varies more for Chdine. Within the Library, Jane feels collaboration is "pretty strong" with a number of "groups within smaller groups" in her department, larger groups that focus on outreach to members of the campus community,

and co-teaching "those…broad intro to library classes which any librarian can do…it's fun to do 'em with a colleague where we can trade off."

Chdine enjoys collaboration and feels that in some situations it allows him to address an insecurity in his ability to complete a large project by himself:

> I've done quite a number of books which were co-authored. I think maybe it's a bit of…a certain insecurity. I don't wanna write the whole thing myself because I feel…with each topic there are issues where you have specialists out there who have already thought about one thing or another.

He feels that collaborating in this way is "easier and more satisfying…and usually ends up a more interesting book than if I had written the whole thing myself."

Initial meeting. Jane and Chdine met very early in Chdine's time at PIRU-E due to Jane's ASL position: "The department secretary brought him up to introduce him to people. And she introduced him to me…And actually, before I met him, the professor who knew him asked me to show him the ropes." Her knowledge of the ASL and slide ordering made her the ideal person to show Chdine how to get the materials he needed. Chdine remembers Jane showing him how to use the ASL and also telling him stories about America and its history. He also notes her organizational tendencies and what he calls her "amazing brain" since she "always knows where things are and where to find the images."

Impetus for research collaboration. Chdine and Jane's two successful collaborations are attributed to a shared interest in the research topic, Chdine's interest in working with someone he trusts, and the traits they both bring to the collaboration.

Shared research interests. Chdine and Jane's book publications have been centered in Chdine's research area, which Jane appreciates as she's "not really interested in doing kind of library research." She emphasizes that library research "just does not appeal to" her but "…researching art and architecture. That really is enjoyable to me." Her educational background in Art History and Architecture likely fuels her interest in Chdine's topics, and while the first book's topic didn't initially interest her, she "got so into it when I started researching it."

Faculty interest in working with liaison. From Jane's viewpoint, her first invitation to collaborate with Chdine came because of his disappointment in the quality of work graduate students had done on his previous book and his knowledge of the quality of her work:

> …for his previous book he had gotten grad students to help him out. And he wasn't too happy with that. He and I had gone to lunch and he was saying, "I wish you could help me." And I [asked], "Well, what would I have to do?" And we got to talking about it…he knew that I could write. And he knew my research skills because I helped him all the time answering reference questions…[he] thought we would work well together.

After this initial discussion Jane second-guessed her involvement and suggested that Chdine go back to working with graduate students. But he reaffirmed that he wanted to work with her.

Collaborator traits. Jane and Chdine bring different traits to their collaboration that help make it a success. Jane highlights her organization, calling herself "extremely organized" – a trait especially useful when she "had to keep everything, all those balls in

the air, of getting this book out." Other traits directly align with the work she did on the project, including her ability to meet deadlines and her research skills – traits that are "important to my job, and very important to the projects as well." She also notes her writing ability, though she doesn't feel that's "much a part of my job." Chdine identifies the same traits, describing Jane as "super organized and she writes well. And she's a fantastic researcher." For his traits, they both refer to his subject area knowledge. As Jane notes, he is "someone who is an expert in his field," while Chdine notes his knowledge of "what interesting topics are" in his field.

Division of labor. For the first book collaboration most of Jane's work involved research and writing to create architectural design catalog entries, designer biographies, and a glossary of terms. She also handled locating and clearing copyright for the book's images and helped edit some of the expert's essays, including Chdine's. While not anticipated, she found herself keeping the project organized and served as "a go-between, between Chdine and the publisher." Chdine acknowledges how much Jane "helped…with the research…wrote a lot of entries and helped edit…and helped with the whole organization."

Relationship dynamics. Jane and Chdine's relationship is friendly and includes lots of laughter and good-natured ribbing. Jane describes Chdine as "a good friend. Definitely, we're close friends. He's someone who I really respect as a scholar. He's really fun to work with." She even sees their joking and ribbing as signs of "friendship and affection." To her, Chdine's personality is equal parts charming and maddening. She jokingly suggests that the reason his colleague wanted her to meet him was because "this person knew him well, so, it probably was also…try to keep him in line, because

he's really good at charming his way into getting what he wants…you have to be able to say no to him." And when talking about their work on the first book, she notes that he was "maddening because he never stops…he's constantly changing, he was constantly late."

Chdine's "quirky" personality is something they both recognize and that Jane accepts about him. As Chdine shares, "she knows my quirks and…insecurities…and she can deal with them and make fun of me." Jane agrees and points out how their good senses of humor makes their relationship work:

> I have a very good sense of humor and I like people who have a good sense of humor, and he certainly has one…it's like affection…Friendship and affection that he liked being made fun of. He still does…And he makes fun of me too. So, it goes both ways. But we're both good sports about it. [laughs]

Jane's personality acts as a balance to Chdine, and she admits to being bossy when she works with him: "I was already used to…telling him…'I can't take anything later than this for scan or for photography'…he was…used to me bossing him." While she sometimes serves as a sounding board, she acknowledges that "anytime I'm working with him, I definitely become kind of like the boss of the project." She relates some of this bossiness to her need to be organized, something she feels Chdine was happy to let her do: "…in order to work with him, I had to be able to…take over and be in control of all the…organizational aspects of it."

Respect and trust. Over the years Jane and Chdine have built a relationship that includes respect, trust, and feeling valued. Jane feels that Chdine "respects me, respects my work…he trusts me." She sees respect and trust in his willingness to "write an essay

and then have me read it over and change things…it's really a great feeling…as a librarian, that I'm respected in that way by a faculty member. Someone who is an expert in his field." This respect was seen even earlier in their relationship when Jane still worked in the ASL: "...before he'd go to class, he'd ask me to come over and he'd go over the lecture with me to make sure it sounded okay. He'd ask me for advice about…an image he could use to compare to some other image he wanted to talk about." These interactions show Chdine's respect for Jane's knowledge of his subject area.

While Chdine respects, trusts, and values Jane he admits - and Jane agrees - there have been times when he took advantage of their relationship and needed a reminder to respect Jane's needs. Jane recounts a story from their first collaboration that exemplifies this:

> …at one point he got me to stay late working on this project. And I was really tired, I'd been working all day. And the next day he came in, he's like "Oh, hi." And I said, "I gotta talk to you." And he said, "Oh, no. You're not quitting, are you?" [laughs] He knew he had pushed me a little too far. And I said, "No, I'm not quitting. But, I cannot continue this way." [laughs]

Chdine feels he sometimes "[doesn't] put enough work in…she's always so nice and easy going, that…one tends to take things for granted." But Jane feels he does show how much he values her and notes he is "very generous about giving credit where he thinks credit is due," including telling others how important she was for the successful completion of their first book project and "how much he relied on me for this book."

This reliance within their relationship was seen in other ways as well. Jane notes that after they first met, "he became really reliant on me when we were in the slide

library." This is something that Chdine corroborates when he notes they "became friends and…I've relied on her ever since with research questions and so on." They both feel that some of this early reliance was due to Chdine's newness to the country and his faculty role. As Chdine sees it:

> …she would sit in on my lectures and insecure as I was…arriving there as a young professor from [Europe]…I would always afterwards go to the slide room if she had sat in on my lecture, and ask how it was and if it was okay or not. And she would always calm me down, say "Yeah, it was fine."

Jane speaks about this reliance when referring to Chdine and another faculty member who sometimes sought her out: "…when they first started they were junior faculty members too. And they were both European, so they were far away from home…they didn't have their…support system that others might necessarily have."

Jane does not see this level of trust and respect between faculty and librarians as the norm at PIRU-E as "There are faculty who wouldn't consider [collaborating with a librarian]." While her overall interactions with faculty are "good," she feels that most faculty don't see "[librarians] as being on the same level." This makes her "grateful that [Chdine]…took that chance" and feels that "there weren't many faculty members who would say, I'll work with a librarian on this project. But he looked beyond…what my role is, what his role is, and looked at who could work well with him."

Challenges to future collaborations. Jane and Chdine work well together and have enjoyed their collaborations, but the possibility of future collaborations faces a few challenges. The biggest challenge is lack of time for Jane, who appreciates the result of their collaborations but not the amount of work:

> …it's exciting to think that I've actually been able to become a published author, which I never expected. [laughs] And, it was fun. It was…very satisfying…it's also kind of exhausting, 'cause I'm doing this on top of doing a full-time job…there is that aspect to it that I don't particularly look forward to.

She also acknowledges that things at work are different and "it is harder to find that kind of time now, because I don't just work with the Art Department – I work with a lot of other departments. And I can't just…play favorites with them." Chdine has noticed these changes and feels it is a barrier to Jane's ability to join him on a project:

> …she's maybe also a little more protective of her own free time…She has a very busy job…she's basically doing the job of two people. And she's so organized that she can do that, but when she has done an eight-hour day of full concentration, she is kind of done… it's probably a little harder to get…her to commit to additional work and additional time outside of her eight hours.

Another challenge to future collaborations is physical distance. Before the Art Department split and Jane's move to the main library, it was easier to see each other and spend time together. Jane feels this distance not only impacts their relationship but her ability to collaborate with faculty: "I collaborate with people more in the library, which is a good thing. But with faculty…because there is that distance…I just don't see them very much anymore." Chdine also views the distance negatively, saying "now that she's in a different building…I don't see her quite as often, and I feel maybe that's a…mistake."

Despite her hesitation, Jane "hope[s] that we can do at least one more [book], and maybe more than that together." And Chdine, not surprisingly, thinks "it would be great

if we could get her on board for the next project." Considering how strong their relationship is, both personally and professionally, a third book is more likely than not for this pair.

Dolores & Suzanne

Overview of the collaboration. Dolores and Suzanne's on-going collaborative relationship began 10 years ago in the classroom and includes multiple projects and activities. Their most recent research project began through a combination of classroom interactions and participation in campus faculty development programs. One of these programs, called Praxis, encouraged them to apply what they were learning to an in-class collaboration and also led to their research article, as the program encourages dissemination of work that directly reflects what participants learn. Dolores and Suzanne share similar views of the importance of collaboration, particularly within teaching, and similar academic backgrounds. These aspects of their relationship help define their "collegial friendship."

Institutional setting. Dolores and Suzanne work at a mid-sized private, Catholic university located in the East. I refer to it as MPCU-E in this case study. MPCU-E is a *Doctoral University: Moderate Research Activity* on the Carnegie Basic Classification System. From their perspectives, research is a major focus of MPCU-E. However, the outward message is that students and teaching are the primary focus, as evident in the institutional mission and strategic plan. Research and the Libraries appear in the institution's strategic plan as part of a goal to enhance areas that support academics.

The Libraries' goals align with MPCU-E's, but include collaboration as a main objective – a term that appears only once in MPCU-E's strategic plan and mission

statement. The Libraries' focus is student success, though providing resources to support faculty teaching and research are also part of the vision. In general, research support is provided by the collections and the physical spaces provided. Librarians who perform liaison work at MPCU-E are known as "Subject Librarians" who focus on providing instructional and collection support.

Dolores, the liaison. Dolores has worked at MPCU-E for ten years, transitioning from a five-year career as a biological anthropologist. While she had some experience working part-time at another university library and a public library, MPCU-E was her first full-time librarian position. Though hired to be the sciences librarian, which includes supporting Suzanne's department – Biology, Dolores also supports Anthropology, Sociology, and Social Work, and all the Health Sciences.

Liaison work expectations. Librarians at MPCU-E are classified as faculty, and Dolores has similar research, teaching, and service expectations as teaching faculty – though she feels the expectations are slightly different for the two groups:

> …for faculty across the board the theoretical idea is that it's 1/3 teaching, 1/3 research, 1/3 service…in actuality it's 90% teaching and everything else…For us, it's 90% library work and everything else gets thrown in. Which means you're always trying to juggle a lot of things.

Her research interests often relate to her liaison areas, including Chemistry citation analysis and her biology co-teaching work with Suzanne, though she also ventures into topics like fake news and predatory journals. As a liaison she provides collection development, research support, instruction services (including co-teaching and embedding in courses), and outreach. She believes that outreach and being visible on

campus help her to connect with more faculty and students who see her in the faculty dining hall or at departmental events. But she worries she's spread a bit thin, and at times she feels she neglects one department due to how immersed she is in another.

Liaison's work environment. Dolores finds her work environment to be "very positive," though she admits missing biological anthropology field work and regrets "that we don't get enough time to do research." She feels her work environment is supportive, especially of her faculty collaborations:

> I am very, very fortunate…not only our Dean but our past deans have always supported what I do, even though they don't really know a lot about what I do…nobody questions the fact that...when I was co-teaching in biology, I was in [the Biology Building] more often than I was in the library…

She does have concerns with Library changes that have led to the creation of "the old guard and the new guard." While this has not led to a hostile environment, she notes the difference in how the groups interact, with the old guard hanging out socially but the new guard "not so involved in [hanging out]…where I think most of our information exchange happens." This leaves her feeling disconnected from the new guard and unaware of what they are working on.

Dolores also has concerns about the institution's increased focus on research without increased support, especially for librarians, and the impact it has on newer librarians:

> …as an institution we're trying to raise our profile…there is a great deal of emphasis being placed on research and scholarship with only limited support to do it, at least for us…it puts our younger un-tenured librarians…in rather an

> eggshells kind of position. That they feel like they have to do all this extra work, or they won't get tenured.

She also feels this impacts collaboration between more established librarians, like herself, and newer librarians, who tend to "collaborate with one another."

Suzanne, the faculty member. Suzanne came to MPCU-E in 1985 following a stint as a post-doc. Over a thirty-plus year career she held positions within her department and on campus, moving from assistant professor to full professor. Though she officially retired in 2017, the sudden death of the person who taught one of her courses brought her back to campus in a teaching capacity. She also stays highly involved in the Praxis program and regularly attends those meetings.

Faculty work expectations. MPCU-E requires faculty to participate in research, teaching, and service to earn tenure and qualify for promotions. Suzanne began her career teaching microbial physiology for MPCU-E's new microbiology program and used her background in ecology to resurrect the program's ecology course, which she taught every fall until retirement. She also lectured and co-taught for the Honor's College and taught for the School of Diplomacy and International Relations (SDIR). She was highly involved in service, including mentoring graduate students, chairing faculty senate, serving as SDIR's Associate Dean for Academic Affairs, and working on a core curriculum committee. She attributes her ability to do such varied work to earning tenure since "after you get tenure, you can begin to explore other areas."

Suzanne's research and scholarship focused on various biology topics, ranging from fungi and lichen to acid rain. For research she was expected to "set up a lab, have external funding, and…produce – the expectation was a paper a year, more or less."

Early in her career, these expectations were directly related to earning tenure and she struggled as the institution "wouldn't count [my publications] for tenure because they didn't take place at [MPCU-E]." She attributes some of her ability to earn tenure to a last-minute collaborative project that literally dropped onto her desk when an "old, experienced professor came into my office, and plops down a log covered with lichens." This led to a sabbatical and published research, which along with her collaborative work with a colleague at local institution, helped her to earn tenure.

Faculty's work environment. Considering how long Suzanne has been at MPCU-E it is not surprising she feels she and her colleagues have had "our ups and downs." But what is surprising is that she has not developed social relationships with those colleagues: "It's a strictly...collegial relationship. It's a work relationship." She feels this has influenced her preference for working with others in different disciplines: "Yeah…I'm really not involved with anyone in the Biology department…I actually interact as a colleague more with [Dolores] than anyone else at [MPCU-E]."

Role of collaboration in work. Dolores and Suzanne both describe the role of collaboration in their work. Suzanne is a bit of an enigma as someone who "enjoy[s] working by myself. But I…think that you can do more interesting work, if you have a collaborator." She has a particular affinity for team-teaching, something she was first introduced to in the Honors' College. Once she began co-teaching she "loved it and I said, 'I'm never turning back.'" Her work with the Honor's college also introduced her to interdisciplinary teaching and all of her "collaborations have been with people in really different areas." She feels this ensures "that what I could bring was valuable to them, and

what they could bring was essential to me…I think that's really the heart of a good collaboration."

While Dolores collaborates both internally and externally, she collaborates "with more people outside the library than in it." In the library she collaborates with colleagues on teaching and supporting liaison areas, especially the Nursing liaison since their areas overlap. She has also collaborated on article publications "with a couple of…librarians, largely because somebody was coming up for tenure and didn't have enough publications." But most of her collaborative work is done with senior faculty.

Benefits of Collaboration. Suzanne and Dolores articulate why they feel collaboration is beneficial. Suzanne feels it allows people to be "even more creative than anything they could do themselves." Dolores shares the importance of different perspectives: "The ideal would be somebody who would bring a different perspective to something that I might know from one point of view." Even within their successful collaboration, both describe the value that a third person brought to their project. Suzanne shared this idea broadly, saying "sometimes you need an outside person to…just look at [a project] objectively." Dolores spoke more specifically, stating "that's why we needed [third collaborator] in the planning stages…to…bring us a little bit down to earth and say, 'No, we're not going to be able to cover all of this, and still do that.'"

Initial relationship development. Suzanne makes it clear that their relationship didn't start out as "something that was assigned by the structure of the curriculum…this was something that we sought out." While Dolores had occasionally done guest lectures for Suzanne's classes, it was their participation in Praxis that opened the door for deeper collaboration. The first instance occurred with a grant to obtain a collection of religion

and science books. While their memories of who located the grant and brought it to the attention of the other is different (Suzanne remembers seeing it as part of her involvement in Templeton Institute seminars; Dolores remembers seeing it advertised by the International Society for Science and Religion), it resulted in a successful collaborative effort to obtain the grant and acquire the books for the Library's collection.

Impetus for research collaboration. Their research collaboration is a direct result of participating in Praxis – or as Suzanne calls it, "the lab part" of MPCU-E's professional development programs that provides opportunities to learn about the philosophy surrounding the intersection of religion and science within Catholic education "and then apply it to your own discipline." Praxis introduced them to using reflection to understand how students understand their experiences, something Suzanne felt would work well in her biology courses. With Dolores' background in ecology, Suzanne felt they could work together to apply these ideas:

> I said to Dolores, "Why don't we see if we can…get some [Praxis] into the laboratory, so that the students will be more aware…begin to reflect more on the experiences they're having in the lab. They'll ask some questions beyond just what's in the lab book."

They first tried this method with three lab sections they co-taught in spring 2014 and continued through spring 2016. With the encouragement of Praxis, they were able to present and then publish articles about their collaborative work.

Collaboration roles and division of labor. Suzanne had an idea of one role Dolores would play in their classroom collaboration ("She'll help [students] figure out how to go to the literature and find some answers"), but the other roles each took varied

depending on what aspect of the project they were working on. In the classroom they divided the work up evenly whether they were working with students in small groups or grading assignments, though Suzanne recalls Dolores did a substantial amount of work: "…she read all of the annotated bibliographies, put grades on them…it…was my class, I was teaching it. I assigned the final grades. But, we both read the papers." Dolores notes they "split the grading, not just the library and annotated bibliography part."

For their publication, Suzanne feels most of the work fell on Dolores: "The article would never have gotten written except that Dolores drafted it…did the… statistical analysis and…the literature review. It was really her paper and it happened to take place in my class. So, I was an author on it." While Dolores admits she often "end[s] up doing most of the work" in her collaborations, she is quick to refute Suzanne's assertions that she (Dolores) did most of the work on their recent publication:

> I think Suzanne underestimates her intellectual contribution there. And the importance of not just doing it with her but her ideas. She did write big pieces of the paper…Yeah, I did all the statistical stuff…but she wrote quite a big piece of the background…I think Suzanne's thinking in terms of what we might call material contributions and not intellectual contributions there.

Impact of communication. No matter what roles they take within their collaborations, neither report having any issues determining who will do what, likely due to how well they communicate. Both describe themselves as a sounding board for the other. As Dolores states, "I think when we're in the planning stages, she is a sounding board for me and I am a sounding board for her. We talk a lot about things that we want

to do and how we're going to do it." They also communicate well when grading and Dolores points out how "If I was stuck, I'd say, 'Hey, what do you think about this?'"

Impact of liaison's expertise. Dolores' expertise in two distinct areas impacts her roles within their collaborations. Suzanne expects her to bring library research expertise and knowledge of library databases "which are constantly being updated and changed" to the classroom and their research. This viewpoint could limit some liaisons, as Dolores expresses, but her experience as an academic allows her to take on broader roles as well. Suzanne refers often to the importance of Dolores' background, saying "she was able to bring a lot to the ecology class because of her background;" "I think we have mutual respect for each other's academic background;" "she is trained as a biologist…that is a bonus;" and "maybe the reason that Dolores and I ended up doing the team-teaching was because she had that skillset." Dolores also feels her "previous life" impacts the roles she is able to take on:

> I can't imagine having done the collaboration I did with her…if I didn't have a PhD in a relevant area, and I didn't have teaching experience…I doubt it would have gone beyond my coming in to give a guest lecture…She certainly wouldn't have let me teach an entire class.

Impact of institutional status. Suzanne and Dolores talk about the impact that status has on collaborative work. Suzanne acknowledges that being a full professor means she didn't care where their paper was published, but this might not have been the case a few years earlier:

> …we published it in a library journal…I'm already a full professor, it didn't matter where…it got published. I was doing this because I thought it was a neat

> thing for the students. But I think that had we both been associate professors…trying to get those pubs – pushing 'em out of the nest. It might've been a different kind of dynamic. I might have been more active in trying to get the biological part [published]…maybe I might have even said…"I don't wanna be involved in a publication because this is not gonna help me."

Dolores feels librarians' faculty status differs from that of teaching faculty, and while there are research expectations, it is more difficult for librarians to find the time due to differences in work schedules and release time. Teaching faculty can receive course release for research time, but for librarians "it's twenty days…And it is…a reduction in workload in that you...don't have to come in every day…most people take one day off a week, which means you do five days-worth of work in four." Dolores describes a setting where differences in institutional status could serve as a barrier to liaison-faculty research collaborations. While she and Suzanne were able to avoid this barrier, other liaisons and faculty at MPCU-E interested in collaborating may not be as successful.

Successful collaboration traits. Suzanne and Dolores share traits that create a successful collaboration. One trait is having a shared goal for the collaboration's outcome. For their teaching collaborations, Suzanne notes they "had the same goal, which was to…make [students] comfortable with using the research facilities in the library, and…to go beyond Google." She also notes "the similarity in discipline," which Dolores echoes: "…we have interests and background in common, but different enough that we both bring something to the table." Suzanne also mentions collaborators needing to have "a different skillset" than her.

Relationship dynamics. Suzanne and Dolores "clicked" when they first met and have a close relationship that Suzanne calls "a collegial friendship," referring to Dolores as "a colleague for life." Dolores calls Suzanne "probably one of my best friends" and feels they complement one another: "Suzanne is probably the mellowest, most easy going, accommodating person that you'd ever want to meet. And I tend to be a little bit of a high performer, a little bit of a stress bunny. So, she's very good for me." Suzanne admires how "Dolores really puts herself out for other people." And even though her years of experience and full professor status make her the "senior person" in their relationship, she "never felt that way. I felt like Dolores and I were peers and collaborators." Dolores also feels Suzanne is a peer who is genuine and committed to her students.

Future collaboration. Even though Suzanne is officially retired, they are considering future collaborations, including publication of their collaborations in Suzanne's ecology courses. And Dolores suggests a sequel to the biology research paper they published last year. She also describes a "fun" collaboration they could consider for after her own retirement – developing and teaching a special elective course. Given their strong relationship and mutual enjoyment in team-teaching, these collaborations are more probable than not.

Rose & Christine

Overview of the collaboration. While Rose and Christine have known each other since 2002, their in-depth collaboration did not begin until 2016 when Rose approached Christine about a grant-funded library assessment project. The project was part of the Association of College & Research Libraries' Assessment in Action program

which requires awardees to create a team with both library and non-library members. This project is on-going and has far exceeded their expectations, particularly in terms of presentation and publication opportunities. Collaboration is part of their positions and general work style, but both view their relationship as distinct from others, especially in terms of impact. This impact along with other factors defines the uniqueness of their relationship.

Institutional setting. Rose and Christine work at a private, Catholic university with a liberal arts focus located in the Upper Midwest. I refer to it as at PCLA-UMW in this case study. PCLA-UMW is a *Doctoral University: Moderate Research Activity* on the Carnegie Basic Classification System. Despite this classification, PCLA-UMW's mission and vision focus on students, and the institution boasts a 14:1 student to faculty ratio. But the strategic plan and faculty handbook emphasize the importance of research for institutional success. And PCLA-UMW's website indicates faculty research is highly supported by different offices and programs.

The actual importance of research remains up for debate. Rose feels PCLA-UMW is "not considered a research university" but "faculty get mixed messages. They have to research, but they really are not expected to research. But they do have to research if they're up for tenure or if they want to be promoted." Christine agrees that the institution is not "a big research university where you're mainly focused on your research," but acknowledges the emphasis on "scholarship has increased in the time I've been here, quite a bit."

The PCLA-UMW Library is an academic area whose mission aligns with that of the institution. While research is not specifically mentioned within the Library's mission

or values, collaboration is listed as one of 10 Library values. Librarians who perform liaison work at PCLA-UMW are known as "Subject Liaison Librarians." The website's message about their role focuses on collection development to support the curriculum and research support. There is no mention of liaisons engaging in instruction beyond the provision of resources.

Rose, the liaison. Rose has worked at PCLA-UMW since 1996, starting as a part-time librarian while she finished her library degree. In 2002 she took a full-time position and has worked in that position under various titles for 15 years. Her current position, a slight promotion with more responsibility, focuses on research and instruction and she is considered an information literacy specialist. Librarians at PCLA-UMW are classified as staff and do not have the same requirements for research, teaching, and service as faculty – though library instruction is part of Rose's position.

Liaison's workload. Rose serves as liaison to seven areas mostly in the Humanities, including Communication and Journalism, American Studies, Film Studies, and English (Christine's discipline area). As a double major in Humanities and Journalism & Mass Communication most of her liaison areas relate to her educational background. The one area that does not relate is English, which happens to be her largest and busiest area.

Liaison's work environment. Rose's work environment is one of contradiction. On the one hand, she describes it as "tough" and feels she and her colleagues "are not a team. We're more of a group with a lot of dysfunctionality…there's a huge mistrust…a lot of jealousy. A lot of competition." Some of this competition has led to tension between liaisons, as some liaisons work with departments that offer more opportunities

for instruction – leaving other liaisons feeling their work is unfairly measured against the work of these high performers. Rose feels much of the dysfunctionality is "because people feel so undervalued…because [they] have to prove themselves." This creates a "very difficult and, at times it feels very hostile and even toxic" work environment with "no job security." These negative aspects of her work environment have likely led her to build stronger relationships with faculty outside the library: "…in general I have some faculty that I'm much closer to…people I've worked with for a long time, and we've created a trust that I don't have between me and my other colleagues often."

On the flipside of this, Rose likes her colleagues and finds them to be supportive and flexible in some aspects of their work: "As much as we don't agree on everything…they have my back and I have their back…in terms of flexibility…something happens and you need to leave. They'll cover for you." This is something she is "utterly grateful" for, since she knows "that it's not the case in every job." She also feels supported by her supervisors, including the library director who "knows that I work my butt off" and encouraged her to go after the Assessment in Action grant, which required support of both the library director and the provost.

Role of collaboration in liaison's work. Rose feels collaboration plays a role in many aspects of her work. This is especially true for her library instruction, as "everything I do for library instruction totally depends on collaboration." She feels collaboration is necessary for successful library instruction: "I totally believe that we need to be in communication, and collaborate in terms of understanding what's expected of me. And, how I fit into things and how the students, as the receivers, will benefit." Within the library she works with her fellow librarians on collection development, in

discipline-specific roundtables, and on a research and instruction group. She also serves on a campus-wide assessment committee, though she struggles to determine what her role should be since the library does "not have an assessment program in place." She also considers the one-on-one assistance she provides to students, where they're "seriously thinking together and bouncing off ideas," to be collaboration as well.

Christine, the faculty member. Christine came to PCLA-UMW in 1993, right after receiving her PhD in English. Her dissertation and early research looked at the concept of voice in writing from both a literary and rhetorical composition standpoint. She feels her focus on literature and writing brought her to PCLA-UMW as head of the basic writing program, since the "English department is very committed to teaching writing and literature together." She is a tenured associate professor in the English department and Director of Writing Across the Curriculum (WAC), a position created after a core curriculum revision created the WAC program. While Christine has "dreams of going up for full professor," she needs more publications – something she feels "Rose is helping me with."

Faculty work. Faculty at PCLA-UMW are expected to perform research, teaching, and service. Much of Christine's current work is geared toward the WAC program, since the institution "created a program out of nothing" but she continues to teach in the basic writing program where she first met Rose. She feels PCLA-UMW has "high expectations for…the quality of our teaching and the load is 3-3," though she receives a load reduction as the Director of WAC. Service requirements are "always huge," though she observes differences based on school size where faculty in smaller

schools, like Social Work, have higher service requirements because there are fewer people to serve on committees.

While scholarship is required "and has increased" in the time that she has been at PCLA-UMW, Christine feels that "increasing expectations come with increasing opportunities" in the form of faculty research support like the workshops offered by the Center for Faculty Development. While she has not taken advantage of most of these opportunities, she anticipates doing so as her own research focus continues to narrow in on WAC. How much research and scholarship she needs depends on her goals: "…to be considered doing *well*…you'd have published an article in a given year, or presented at a…major conference…To get promoted, I need to have…two or three…peer reviewed articles within a…four-year span." While seen as difficult to achieve, she feels the standards are "perfectly reasonable," but just not a priority for her.

Faculty work environment. Christine has a collegial relationship with people in her department and though "we have our differences…we maintain respect." She describes a work environment where there are "friendships and socializing" and a number of conversations take place in shared work spaces and around "the water fountain down the hall." She even goes dog walking with two of her colleagues as they happen to have dogs from the same litter. These social relationships inside her department are lacking in Rose's work environment.

Role of collaboration in faculty work. Collaboration, especially co-teaching, has been a part of Christine's work at PCLA-UMW from the beginning. The basic writing program she headed for 10 years pairs a writing course with another subject. Within this program she often pairs with the same person for a number of years and has enjoyed

long-term collaborations with faculty in history, biology, and most recently, theology. Her work with WAC is also highly collaborative, as the program requires her to "work with faculty across the disciplines" and is "all about collaboration because I'm reaching out to departments, as well as individuals." She also includes collaborative writing and internal and external committee work as other examples of collaboration within her work. Overall, she enjoys collaborative work, especially collaborative teaching where she can "just [learn] about the other subject."

Impetus for collaboration. Rose and Christine's initial interactions were based on Christine asking Rose to teach library instruction sessions for her class. Neither found these initial interactions to be memorable and no real relationship formed at that time. What led Rose to approach Christine was her decision to apply for the Assessment in Action program. She saw potential in assessing the impact of the librarian-faculty collaboration on the writing of students taking a WAC course. Since Christine was the WAC director, she was seen as a good fit for the collaboration, a fact Christine supports:

> …as Director of Writing Across the Curriculum, I have connections that other faculty members would not have…I think that made me sort of uniquely who she sought out…I know faculty across the disciplines and I have a personal "in" to them.

Despite the obvious connection, Rose was unsure if Christine would be interested in the project, but to her "amazing surprise she was so enthusiastic…she was interested." Christine is quick to say, "it seemed like a logical place for…having faculty-librarian collaboration."

Shared interest. The project Rose presented to Christine was not in her area of research interest, but she quickly identified it as something "that could be part of my research agenda." Both note the similarities between research and writing that made the project's topic very close to Christine's work. Rose notes how research and writing "both emphasize process" and Christine points out the parallels between "what the [information literacy] frameworks are putting forth and what my other world is putting forth…this is like a natural match." The potential impact of the project on her work also appealed to Christine, who "like[s] to see the practical application of the research…in what I'm doing."

Collaborator traits. Rose and Christine look for different qualities in their collaborators, though there is some overlap when they talk specifically about their collaboration. Rose looks for chemistry, "someone who is open-minded," values her role, is willing, is interested in learning, has individual expertise, and will participate equally. She especially values equality: "I think that collaboration has to be where you meet…in more collaborative ways…more equally and more positively. I don't think that any other collaboration really works as well." Rose also emphasizes the importance of a collaborator having their own area of expertise, where "neither one of us felt like we know more…we each brought what we have to the table."

Christine's preferred collaborator traits mostly focus on teaching, but can also apply in a research collaboration. She specifically looks for collaborators with similar views about teaching, "willing to meet and talk," willing to work together on shared learning goals and expectations, someone she already knows, and someone she trusts. She finds it "more of a challenge" to work with someone she does not know and who

may not share her expectations for the collaboration. She is more likely to form long-term collaborations working with friends, and feels that these "…long-term…collaborations…just [get] deeper and richer as you go along."

Other than someone who is willing, there is little overlap between the traits they each look for in a collaborator. However, when specifically talking about their collaboration, Christine touches on many of the traits identified by Rose, including an interest in learning and having expertise. She identifies herself as having an interest in learning, and likes co-teaching collaborations that allow her to learn "about the other subject." She also mentions how she learned about the information literacy frameworks from Rose. For expertise, she emphasizes Rose's information literacy expertise and Rose's research skills, often telling others that the "book chapter we wrote is the best researched thing I've ever written. And it's because Rose did most of the research." This indicates how much she values Rose's skills in their collaboration.

One marked difference between the traits they seek in a collaborator is the idea of collaborating with friends. While not present in every collaboration, Christine has been able to co-teach and co-author with a couple of faculty members she considers friends. Even if she is not friends with them when they first collaborate, she feels they are now friends and describes her long-term collaborations as happening "with my friend" and "one of my good friends." This is not the norm for Rose who feels "It's really different with Christine, because we hit it off…in a different way. But I've never had a friend that then I collaborated with." She is friendlier with past collaborators but doesn't "know that I'm really friends or have become good friends" with them. She sees Christine as "a very special case."

Relationship dynamics. Rose's and Christine's relationship is defined by a number of factors, including a difference in working styles. Rose regards herself as someone who tries "to be very on-task…otherwise…I will forget." This means she is often the first to e-mail Christine to check on the project's progress, something Christine notices: "She's always the one inviting me…I was like, 'I need to take the initiative more in this relationship!' [laughs]" The fact that she was joking and that she actually likes this about Rose is clear when she follows that statement by saying "But, I appreciate it." As she further explains, "I tend to get lost in my various worlds…I always [am] glad she sent me the e-mail and I can…get her on the book."

Personality differences also define their relationship. Rose is a self-proclaimed cynic and introvert, something she feels others misconstrue: "I'm a very cynical person…other people will say that I'm negative…I think people used to think I'm a snob because I was so shy." While Christine labels Rose a pessimist to her own optimist and sees them as "extreme on our little ends," she feels this is found "in any relationship" and something they work out. While Rose may be cynical, Christine does not feel she judges her "even though I'm always making mistakes," and offers Rose the same lack of judgement. To Rose, Christine is "this incredibly funny person," something she did not realize from their earlier interactions.

The fact that they view each other as friends, a development that Rose "never expected," also defines their relationship. Both partly attribute this development from a collegial working relationship to a friendship to a trip they took to co-present at a conference. As Christine recalls:

> …what I think was the turning point is when we went to Connecticut together, because… we've known each other professionally. And we have so much in common…but we didn't really have a chance to get to know each other until you go away from here.

Rose views the experience similarly: "…being together…just the two of us…sharing the hotel…the flights…totally changes the relationship you have…there's more…rapport that is totally different than anything else you would have…if you didn't have that kind of experience." The result of this shared experience is what Christine calls "a good collaboration and friendship."

Impact of institutional setting. Rose and Christine's experience at PCLA-UMW provides insight into how institutional settings can impact liaison librarians' efforts to form relationships with faculty. At PCLA-UMW issues arise due to the difference in faculty and librarians' status, the institution's hierarchical structure, and how much the institution values the library. Together, these factors create a difficult environment for forming strong, collaborative liaison-faculty relationships.

Institutional status. The different statuses held by librarians and faculty at PCLA-UMW act as a possible barrier to liaison-faculty collaborations. This issue is known to both Rose and Christine and is something Christine refers to as "the differentials between faculty member and librarian here at [PCLA-UMW]." Rose relates these differences to libraries and librarians offering a "service" to faculty and feels "that there is…a fine line between being a professional, to being a service…you can note it even in the language. *Use* your librarians." She has found herself avoiding the term and instead asks faculty to "collaborate with" or "work with" her.

Institutional hierarchies. Rose and Christine talk about the hierarchies that exist at PCLA-UMW. While related to institutional status, hierarchical issues run deeper and are seen in various ways. Rose sees hierarchical issues caused by holding different degrees: "I can't really tell them we're equal, because for some…the fact that they have a PhD and I *just* have a master's is enough to create the tension." These hierarchies are also seen in the library as they both recount times where Rose's usually supportive director gives Christine the credit for their shared work. As Rose shares, "Whenever there is something that she and I put together he always thinks that it's just Christine." Christine finds herself emphasizing Rose's role: "I've written…to her boss…about, 'Oh! We came up with this proposal and thanks to Rose,' which is absolutely true…she has her…own political things to deal with in the library."

Value of the library. How the library and librarians are viewed at PCLA-UMW impacts how Rose approaches her liaison work. Her focus is on information literacy but she feels that not all faculty or even the university see information literacy as important for students:

> …I often have to chase faculty, to sell the library and library research to their students…[information literacy's] not something that our institution as a whole has accepted yet…There are always going to be faculty and adjuncts who will not bring their students here.

She also feels that while "the library as a concept is valued…most people don't really know what it is we're doing." This lack of awareness was even an issue for Christine before working with Rose: "Yeah, I just thought librarians do their thing in the library, and…yay them!"

This lack of awareness has a residual effect on their relationship, though not due to Christine not valuing Rose or her work. When asked about having Rose help her with her own research agenda, Christine surprisingly indicates that "it never occurred to me…'cause I don't see her as supporting me. I see us as collaborating…I just hadn't thought in those terms…her supporting my research. 'Cause I think of us as researchers together." Since Rose feels that "most of our faculty don't need as much help with research," it's also possible she never suggested she could assist Christine with her research. This does not mean that Rose would not assist Christine if asked, and Christine, once introduced to the idea, feels Rose could assist her: "She could…I do have this separate research…she has those superpowers about researching…I suppose I…could ask her to help with."

Impact of the collaboration. Rose and Christine's collaboration has been fruitful, resulting in presentations at library and WAC conferences, and a published book chapter. They also created a proposal related to the project for the University's core curriculum revision process, which though it was initially relegated to the appendix, it was not dismissed outright and could still be included more widely. Based on these activities, Christine feels that she has "done a lot of productive work with Rose." But the project has also been impactful in ways that were not initially expected.

For Rose, the project's appearance in the Library's annual report shows its importance to the library and potentially the university. She also feels their collaboration has been beneficial to her career: "I think she gave me…a really good boost…professionally…because… she's so validating." This validation was something missing from her work environment. She also mentions that Christine encouraged and

supported her participation in a week-long WAC training usually open only to faculty. Christine thinks "it certainly seemed like a good idea" and was important for ensuring librarians who work with WAC faculty understand the concepts of writing across the curriculum. Others, however, questioned Rose's participation and receipt of the accompanying stipend, leaving Christine to argue on her behalf:

> …they were like, "Well, what's the product the librarians gonna produce?" This whole question came up. And I was like, "Oh! No, no, no, no, no. She's got a product…She's gonna talk about how she's going to use these concepts in her work. So, it's not a syllabus but she's got a product and she's getting paid." And that was it. They were fine.

As seen with the WAC training session, one interesting impact of their collaboration is Christine's vocal support of Rose and the Library. As Rose shares, "…she's like my biggest ambassador now…because of our collaboration she understands things differently that help us maybe move a little bit forward with some of our initiatives." She sees this as Christine using her status to support her work: "…she has more of a status…that supports my efforts and the library efforts." This is something that Christine corroborates and when asked about the qualities she brings to the collaboration she says "…certainly my position…as a faculty member."

Christine's advocacy has grown out of an increased awareness of the privilege she has as a faculty member and the role that faculty play in the success of librarian-faculty collaborations. She acknowledges "I have privilege [Rose] does not have," and that this is not something she always thought about but something working with Rose helps her to see:

> …one of the privileges of having privilege is that you have the privilege not to think about it. So, I honestly did not think about it…I never knew that at some schools, librarians have faculty status. I'm like, "Oh! Well, now that you mention it, it makes sense. You're teachers." But it also makes sense to me, being a member of the…academic elite, why some people would not support that because of the hierarchies. So, I could see it once she put it in front of me, but I…just wasn't…aware.

With her newfound awareness, Christine feels she "can leverage my position to be an advocate…that's the least I can do, right?" She also feels her advocacy goes beyond just supporting Rose and allows her "to actually effect change in this area of information literacy at the university," something she feels "wouldn't be possible without my relationship with Rose."

For Christine, an oddity of their project is that their research "keeps turning up faculty as the problem…it puts me in a somewhat awkward position as a faculty, 'cause…I recognize that and I don't want to be part of the problem." Their response to this was to create a handout for other faculty collaborating with librarians. While she recognizes the relevance of the suggestions included in the guide, Christine acknowledges that "a lot of this is very idealistic…even in my own collaboration with Rose, I found…I'm still doing the last minute, terrible faculty thing…I completely own that I don't always practice the ideal." But while she has "done all the bad things" listed in their handout, she is "happy to know now through [Rose] and through our research, how it could be just much better."

Future collaboration. Rose sees potential for additional collaboration around their project. They continue to present on the project, and even though Rose is considering putting the project to the side while Christine is on sabbatical, she indicates plans to reassess the project based on the data they have collected. Christine hopes they will be able to pick up and finish an article about the project they weren't able to finish before a submission deadline: "…I definitely want to continue…that article we started…I want to follow that through." She also feels the proposal they submitted for the core curriculum revision process has a possibility of being accepted. This might open the door for additional work as she assumes "we'll be taking the lead on that." They will have to be aware of Rose's role in any further work on the proposal, as both express the possibility of her being left out of the process. Christine notes that "traditionally [librarians are] not invited to be on the curriculum committee." While she is working to find ways for Rose to be included, like discovering that librarians can attend meetings as guests, Rose is already seeing examples of being cut out of the process:

> …one of our physics professors…is amending and taking half of our proposal off the table…we have to go and argue for it…nobody asked me yet to be there. It's always like, the director of the library – which is fine. I'm fine with that – if he goes. But I still want to be there…it's my language, it's my work, it's my passion…I still want to be in that room. And I still want to get that recognition. Is it going to happen? I don't know. And if they decide to vote on it…I have no idea if I would be part of it or not.

Luckily, Christine shares that attempts to cut their proposal were not successful and she is optimistic that it will remain part of the core curriculum proposal. Barring other

obstacles, this should keep the door open for future collaborative work on their information literacy project.

Amanita & Mark

Overview of the collaboration. Amanita and Mark's collaborative relationship is unique because while Amanita is a liaison, she is not the liaison to Mark's department. Their collaboration emerged as a result of Amanita's role as campus liaison for digital initiatives. Their collaborative research project is based on Mark's anthropological field work and more than 30 years' worth of data he and his collaborators collected. The current iteration of the project is an effort to digitize the data for preservation and increased access. While they have only worked together for a few years, the project has given them an opportunity to quickly build a mutually supportive relationship with a shared goal.

Institutional setting. Amanita and Mark work at a small, private liberal arts college in the Midwest. I refer to it as PLAC-MW in this case. PLAC-MW is a *Baccalaureate College: Arts & Sciences Focus* in the Carnegie Basic Classification System. The institutional focus, teaching and learning, in apparent in a strategic plan that emphasizes student success and lifelong learning. PLAC-MW boasts a 10:1 student to faculty ratio and encourages student/faculty interactions. Support of faculty scholarship as it pertains to teaching is articulated in the strategic plan. And while not outwardly obvious, research has become more important to PLAC-MW's identity over the years, as witnessed by Mark:

> [PLAC-MW] defines itself…as a place where teaching is paramount…that's… what students are being told, it's what we're being told. What [PLAC-MW] tells

> itself and donors…when…I came here back in the early 80s, it was just shifting out of "you're being taught by committed teachers." Now, you're being taught by committed teachers who are active in their professions…[T]eaching…is still in the forefront but I think [PLAC-MW] makes a case to students that the people who are teaching you will be people who are actively engaged in whatever their…discipline is…and…the teaching will somehow be inevitably better because of that engagement.

PLAC-MW's Library is an academic resource that supports the institution's mission through resource access and research assistance. At PLAC-MW, the Library is aligned with institutional research and Information Technology services, allowing the areas to collaborate on service provision. Librarians who perform liaison work at PLAC-MW are known as "Academic Department Liaison Librarians," though some, like Amanita, also serve as liaisons for broader areas. Liaisons assist students and faculty with library and research questions through research consultations and course-related library instruction.

Amanita, the liaison. Amanita came to PLAC-MW in 2014, following a couple of years as a library technician and then full-time librarian in a government setting. Her PLAC-MW position focuses on collaborating to develop and support digital initiatives. She is classified as administrative staff, meaning she is full-time, salaried, and receives full benefits, but no tenure. She participates in service activities, like committee work, but is not expected to publish - though she can choose to include publication as a yearly assessment goal. One of the reasons she chose PLAC-MW was because she "did not want a faculty position. I wanted something where I felt like the contributions I was

making were the important thing, not additional publications." She enjoys writing and publishing but did not want the pressure to perform in those areas.

Liaison work. Amanita's liaison position is hybrid, meaning she has traditional responsibilities for an academic area but is also liaison for all campus digital initiative needs. She attributes this liaison model to the institution's size: "Because this is a small institution, I think we wear a lot of hats." As the digital initiatives librarian, she "interacts with…all of our faculty members in whatever ways they need support." In her traditional liaison role, she supports Women and Gender Studies, African Diaspora Studies, and American Studies. While not directly related to her English degree, she feels the interdisciplinary aspects of her liaison areas relate to many of the undergraduate courses she took in Anthropology and Women and Gender Studies. At times, her liaison roles cross-over, as they did when she temporarily liaised for Art History, a group that has "been doing all kinds of stuff with me." But for the most part they remain separate.

Liaison's workload. As a liaison, Amanita supports her departments through collection development, instruction services, and research support. Most of her efforts go into individual research consultations, less into course-related instruction; and more with faculty than students – though she anticipates this will shift soon. Interestingly, she consults more for digital initiatives than her academic departments, a disparity she relates to the institution moving "more and more towards supporting digital humanities and digital scholarship." This leads to "a really broad range" of activities but "no clearly defined rules to support" them, leaving her to "[do] a lot of things," like create a testing lab in the library where students can experiment with software. While this work keeps her busy and at times she feels overwhelmed, she likes the level and variety of work:

"…there's always something new and there are so many different areas…I'm happy that I have so many different things I can work on at the same time…I never feel like I'm stuck in a groove."

Liaison's work environment. Amanita describes a work environment with good communication and personal relationships with colleagues. Due to the structure of some of the liaison positions, job overlap is common and requires communication between colleagues. She feels comfortable letting her colleagues know if she is working on a project with a faculty member from their liaison area. She feels this communication is important at a small college like PLAC-MW, as is developing personal relationships with others in the community, including her fellow librarians. Overall, she feels the Library offers "a really good balance of support and flexibility" and is "about the most functional [workplace] I've ever been in." This support and flexibility feed directly into the digital initiatives' collaborative work she accomplishes.

Role of collaboration in liaison's work. Amanita makes a strong statement about the role of collaboration in her job and feels her position "couldn't exist without collaboration...it is absolutely central to what I do." She describes this further: "I am a…node that has to branch out to be a functional role…getting content for our institutional repository, supporting the faculty professional profiles…I have to engage…with faculty on that." In the beginning, her position involved much time "trying to catch up and…deal with existing need," but now she can actively look for collaborations that are "interesting and will benefit the institution." Her position also allows her to collaborate outside of the institution, including within a state consortium group that is piloting different digital initiatives across five institutions.

Mark, the faculty member. Mark has been at PLAC-MW for nearly 40 years, starting in a half-time teaching position he shared with his wife, moving to a two-thirds time position after a year, and finally into a full-time position in 2001. He is a tenured, full professor of anthropology and teaches courses in cultural anthropology and archaeology. His research area is archaeology with a specialization in the archaeology of Central America. PLAC-MW is the only academic institution he has worked at as a faculty member.

Faculty work expectations. When Mark started at PLAC-MW his half-time position meant he taught three courses a year, then four courses when his position moved to two-thirds time as the standard teaching load at PLAC-MW is five classes a year. He had already gone through the tenure process and most of the promotion levels by the time he reached full-time status. As a tenured faculty member his research, teaching, and service performance is reviewed every seven years, including peer and student evaluations of his teaching. He notes that when he first started at PLAC-MW, he was evaluated at 70% teaching, 20% scholarship, and 10% service – and now the split is "probably 50% teaching, 40% research or scholarship or artistic engagement, and 10% service." He remembers arriving right as this shift was happening and experiencing backlash from older faculty who felt the new faculty were undermining the core principles of teaching that defined PLAC-MW: "A number of older faculty were very resentful…I was called out by name once in a faculty meeting for being one of those people who's undermining…what [PLAC-MW] was."

Faculty work environment. Mark's early experiences at PLAC-MW could have soured his time there, but he took a more pragmatic view:

> …at the time I was perturbed by it, but you could also understand it. Because, here you have people whose identity was "I'm a good teacher." And [PLAC-MW] had told them, "Yes. And so, you are valuable to us." And now they were being told, "Yes, you're a good teacher. Not as valuable as you used to be and maybe you should think about retiring." And…here are these…very young people coming in and seemingly …running roughshod over the place and not respecting what they had accomplished. And it's not that we didn't respect it. It was just a different worldview. But I could understand – if I was in their position, I would probably be angry too.

Outside of this initial entrée into faculty life, Mark has enjoyed the work environment afforded by PLAC-MW and feels the combination of teaching and research has allowed him to build "a very rewarding career." He also appreciates that "there's always been a certain degree of freedom to experiment" within his position. The ultimate expression of this freedom was the Honduran archeological field school that he and his wife jointly ran over the summers, and that the college allowed them to transition into a January through May field experience every other year. This lasted over twenty years and provides the data for Mark and Amanita's project.

Role of collaboration in faculty work. Mark feels collaboration plays a "tremendous" role in his work, particularly his field work. He refers to the different specialists needed for the completion of a field work project, from those working on excavation to those working on data analysis. He sees collaboration within archaeology as a social experience where "you have these people cooperating on a common endeavor, but it's social in the sense that you're interacting with people who live in the area today,"

and more broadly feels that "no collaboration happens in the absence of…the social connection." He see's collaboration as standard for archaeologists, due to the "team-orientated" nature of archaeology that relies on specialists and large numbers of people in the field, allowing them to get more work done.

Initial meeting. Amanita and Mark met when Mark attended her job interview. They both note that it was the project and the fact that Amanita's position would be key to the successful completion of the project that led to his participation in the search process. Luckily Amanita's future supervisor was the Anthropology Department liaison, knew of the project, and invited Mark to the interview. Amanita feels Mark "very much had this project in mind – really needed somebody to support it" when he came to her interview. And once she was hired, Mark was "very excited…that Amanita was coming…we had been trying to develop a relationship with…the Library, and to develop this program…we were very excited to have someone who specifically was going to be devoting themselves to this." He was so enthusiastic about her being hired, that he contacted her before her start date to ask for assistance with a grant application for the project. While she wasn't able to assist him at that time, she appreciated his enthusiasm and the sense of welcome it created: "…that's so cool to be going to a place where people are that excited and…I know that I'm going into a role where I will be wanted."

Impetus for collaboration. Mark and Amanita's collaboration is based around a project that brings together physical materials collected by Mark and Amanita's technical expertise in digitizing those materials. Mark has over a hundred thousand documents collected for over thirty years as part of the Honduran field school he and his wife directed. In 2005, he started thinking about how to preserve the data that was being

stored in 25 large filing cabinets: "…the whole point was just save it. Just get everything…scanned and put it somewhere and therefore it will not get destroyed." Further conversations led to the idea of also creating a "portal, a platform somewhere that people could get access to it." While some scanning took place at this point, both Mark and Amanita point out the important role that hiring Amanita played in moving the project forward. Amanita notes that "they didn't have the technical expertise or the support…they just really needed someone to help them sit down and figure out a) how do we do this? And then b) how do we get it funded?" And Mark refers to her expertise and her introduction of an institutional repository to both store and provide access to the data.

Collaborator and collaboration traits. Amanita finds potential collaborations plentiful at PLAC-MW as "there are so many ideas out there. There are so many people looking for some kind of support and not necessarily knowing how to ask for it. It's more a matter of finding them." This allows her to focus on other factors when looking for potential collaborators, like finding someone "who has ideas and who seems like they want to engage." She also looks for faculty working in interdisciplinary areas, as those "are the kinds of faculty I most like to work with." She feels that being interdisciplinary helps faculty get out of the silos that "are a serious problem" in academia.

The importance of expertise. As noted previously, Mark often looks for collaborators with different areas of expertise. Amanita also feels this is an important collaborator trait, especially within a project like theirs. She relates this importance to receiving funding from a grant program like CLIR: "I don't see how any project like that could be funded without having both the subject matter expertise of the faculty member and the technical expertise of the librarian. Because…nobody has both of those skill

sets." She also feels it is important to recognize the expertise of others in the collaboration: "[Mark] knows where his expertise ends and he knows that I have expertise that can support that…that really is all I need for a good collaboration." Mark corroborates her assertion that he knows where his expertise ends:

> …as an archaeologist I cannot analyze metals…I don't have the techniques or the…machines to…analyze the chemical and mineral composition of ceramic…[F]ield archaeologists…are generalists…we're capable of doing a bunch of things adequately, but…that…may not be sufficient to answer certain questions.

Roles and work within the collaboration. Amanita and Mark take on multiple roles within the collaboration. When collaborating, Amanita often assumes a facilitator-type role, making sure they "keep the ball rolling" and that planned activities take place. But with Mark, due to their "very natural dynamic," she "play[s] a lot of roles" including paper editor, technical support, and student supervisor. To Mark, Amanita is also a translator who turns the project's archaeological structure he helped define into something understandable to others:

> A good translator doesn't just match…what word in one language to a word in another. It's actually a lot more to get meaning across…that's what Amanita brings…It goes beyond just a master of techniques to one who actually knows how to do something more fluid…more meaningful.

Division of labor. Most of their work within the collaboration directly relates to their different areas of expertise, though there is overlap. For example, part of the digitization process includes document classification which requires Mark to explain the

anthropologically-based classification system to Amanita, who translates it into Dublin Core. Similarly, within their grant applications Mark conveys the information about the project, while Amanita focuses on the technical parts and explains "the value of it and the…value of open access in general." They share responsibility for locating funding for the project, with Amanita identifying a small state consortium micro-grant to fund a pilot of the project and Mark identifying the CLIR grant, designed to assist with digitizing hidden or special collections, as a funding opportunity they received on their second attempt.

Relationship dynamics. Mark's and Amanita's easy relationship does not need much effort to maintain. Amanita feels they "hit it off very well" from the start and that Mark's personality and mannerisms make him easy to work with: "He's fun. He's…got a great sense of humor and he's a really easy person to work with. I…do make efforts to work with anyone...regardless of their personality, because that's my job...[with] Mark, I don't have to try." She also describes Mark as one of those people "that are sort of made for collaboration." Mark feels that there is effort in their collaboration simple due to the type of work they do, but he doesn't "feel it's…onerous effort in any way."

An equal relationship. Their relationship has developed into one that Amanita describes as "very mutually respectful and supportive." Mark treats her like an equal, something she feels is important for their relationship and her work: "Mark has always made it very clear that he considered me an equal." Consequently, she regards Mark as a colleague and peer, two terms she equates with being an equal partner. Mark also thinks of their relationship "as equal" and views collaboration as an "equal interaction among peers."

Respect. Amanita and Mark recognize the importance of feeling respected within the collaborative relationship. Amanita feels Mark always respects her, her work, and the work of others involved in the project:

> … I could tell even from that early point that he would be the kind of person who wouldn't just…[think] "Oh, she's basically a glorified office assistant and I'm going to throw things at her and expect her to do them without crediting her or giving her the respect for that." And that's the thing about Mark…with his actual office assistant, he respects her role. He gives her credit for what she's doing…the student workers, he gives them credit. He's not one of those hierarchical people who feels like he needs to be at the top of the heap.

Mark also describes their relationship as having "mutual respect" – and you hear this in his description of Amanita as intelligent, resilient, creative, and innovative.

Impact of the collaboration. Amanita's and Mark's collaboration has been mutually beneficial. Mark especially emphasizes how important Amanita has been to the project: "…we would be nowhere, we would not have this grant without her. I'd have no doubt, I know that for sure." Beyond the grant, he feels she helped turn his ideas into practice and that "she knows exactly how to proceed." For Amanita, working with Mark has given her "a model of what I've tried to do with other faculty members." As the project is still in a development stage, its final impact is still to be seen, though Mark hopes when finished it will have "some value to somebody beyond the people who participated" – something he feels is the mark of a successful collaboration. Both feel the project has the potential to be something the institution can use to showcase the scholarly and creative work of faculty and students.

Collaboration barriers. Mark and Amanita have created a successful collaborative relationship, but they have experienced barriers to liaison-faculty collaborations that exist within PLAC-MW and more broadly. These barriers include the structure of the Library's liaison program, lack of awareness of what libraries and librarians can offer, and stereotypical views of librarians that impact how faculty view their role.

Liaison program structure. As previously described, Amanita is in a hybrid liaison position that supports both academic departments and larger campus digital initiative needs. Mark feels that digital initiatives is where Amanita's focus should be and dividing her time means missing out on possible projects:

> I wished that she had just been a liaison for digital initiatives, because I think that's a full-time job…if she was…there would be more projects coming her way…this job that Amanita does…should be just that job, and not have her time diffused to other departments...even if it was our department, I don't think she should do it.

For Mark, it's a matter of her appearing to be so busy that faculty won't approach her about possible projects: "…they'd wanna collaborate with the liaison, they're probably not gonna say anything, 'cause they know the liaison can't do it. Because they're just too busy. And so, it just doesn't happen." Amanita understands Mark concerns:

> I think that's a fair perspective…I try to work with any faculty who come to me. But I have not been in a position to do much outreach…I'm busy enough that…I'm keeping up with what's coming to me, but…I don't have any…extra to put that out there.

Lack of awareness. Amanita feels lack of awareness of what librarians can do to support faculty work is a barrier to her ability to collaborate with some faculty, especially within digital initiatives. When talking to faculty she emphasizes the importance of libraries as "wonderful places for all kinds of complex collaboration." She feels that the more "that [faculty] understand and recognize that – the more successful their projects will be…that's what I've been trying to convince my faculty members of." She points out how Mark is different because she did not have to convince him: "…he was not one of the ones that I'm like 'Yay, I convinced you.' He was like right there for that at the beginning."

The role of stereotypes – librarians as "support." While discussing the role of librarians and liaisons, the use of the term "support" became central to the conversation. Mark shares his assumption that at larger schools, like Research I's, "faculty see librarians as support, not as collaborator." He feels that the issue may be due to stereotypes held by older faculty and administrators about what a librarian does or can do: "If you are of my age, you grow up in the period in which librarians were people who helped you find books…we tended to see them as ancillary. Helpful but ancillary to our main goals, which was finding information." He feels this view of librarians as support can be transferred to younger faculty by older faculty in graduate school, leading to "a tendency…to view library science people as simply support. The way you would view the maintenance department."

He feels the term "support" is the problem and advocates instead for the term "colleague":

> I think [support is] a dangerous word to use around faculty because…it's gonna be read one way…not the way you…may want it read as a library science person…[W]hat I would really like to see in colleges and universities everywhere, but especially these small ones, like PLAC-MW…is to start thinking of everybody who works there as a colleague…And then start…putting that in action in substantive ways.

His comparison of librarians to PLAC-MW's maintenance staff is based on an experience working on a committee with members of the PLAC-MW maintenance department. He noticed that the maintenance department referred to faculty as "customers," something he feels creates distance between the two groups. He equates this to faculty viewing library staff as support asked to do basic tasks rather than higher level creative work.

Amanita sees "the role of librarians as being primarily supportive," but agrees with Mark about the dangers of using the term "support" and the importance of context:

> I…don't like to use that word without having a specific context around it…I'll say that word to the people I already have a relationship with. But, that's not the first word I would choose either…there is often a mistake made where faculty think that the role that I'm in is more mechanical or more simple…than it actually is…I certainly have been in situations where faculty…come to me with…"I just need you to do such and such." And they clearly don't realize the entire stack of technology and knowledgebase and everything that is behind that.

She actually wishes the word didn't carry such a negative connotation, since "support is so helpful and it can be, in a collaborative environment, a very positive thing. But it certainly can…be misused."

Future collaboration. Due to the project's scope, future collaborations unrelated to what they are already working on are not currently being considered. However, both feel the project has opportunities for expansion, including as a teaching resource. Amanita shares that they are finding ways to "collaborate around it" in the form of a co-written paper Mark presented at the American Anthropological Association and a possible book chapter. She is interested in pursuing similar opportunities and any others that may arise.

Section II. Cross Case Analysis

While each case stands alone in describing the relationships of the seven pairs who participated in this study, cross-case analysis allowed for an exploration of common themes within the cases. A review of emergent themes identified in each case revealed 48 themes found in at least three cases and seven themes found in every case. Similar themes were combined to create 21 sub-themes and classified into four over-arching categories: collaborator traits, collaborator descriptors, feelings/emotions, and potential barriers/facilitators. Table 5.2 shows the categories, sub-themes and which cases expressed examples of the sub-themes.

Table 5.2. *Categories and Sub-Themes Identified Through Cross-Case Analysis*

	Case 1		Case 2		Case 3		Case 4		Case 5		Case 6		Case 7	
Categories Sub-Themes	**Mike**	**Paul**	**Margo**	**Beth**	**Ursula**	**CoCo**	**Jane**	**Chdine**	**Dolores**	**Suzanne**	**Rose**	**Christine**	**Amanita**	**Mark**
Collaborator Traits														
Expertise/Knowledge	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Perspectives/ Viewpoints	X	X	X			X			X		X	X	X	
Time & Interest	X	X	X	X	X	X	X	X			X	X	X	
Enthusiasm/Energy	X	X	X	X			X				X		X	
Prior Relationship		X		X		X			X			X	X	
Work Style/Work Ethic		X		X	X	X	X	X	X		X			
Collaborator Descriptors														
Equals	X	X	X	X	X	X	X	X	X		X	X	X	X
Colleague/ Peer/Partner	X	X	X	X	X	X		X	X	X	X	X	X	X
Supporters	X	X		X	X	X		X			X	X	X	X
Friends				X		X	X	X	X	X	X	X		
Feelings/Emotions														
Fun				X	X		X	X	X	X	X		X	
Comfort	X			X	X	X	X				X		X	
Gratitude	X				X		X							
Trust	X		X	X	X	X	X				X	X	X	
Respect	X	X	X		X	X	X	X			X		X	X
Feeling Valued		X			X	X		X	X		X	X		X
Potential Barriers/Facilitators														
Institutional Status	X	X	X	X		X	X	X	X	X	X	X	X	X
Stereotypes	X								X		X		X	X
Workload	X	X	X		X	X	X	X	X	X	X	X	X	X
Institutional Support	X	X	X		X	X	X		X		X	X	X	
Proactivity/ Visibility	X	X	X		X	X	X	X	X		X	X	X	X

Note. Liaison listed in first column within each pair.

Collaborator Traits

Participants in each case identify traits they either seek when looking for a collaborator or found within their study collaborator. Some traits are related to a person's abilities, while others are tied more directly to behaviors or actions.

Expertise/Knowledge. Arguably the most important trait sought in a collaborator is expertise or knowledge. Every participant recognizes the importance of finding a collaborator who brings their expertise or specific knowledge to the collaboration. Some participants talk about this in terms of locating someone with a different expertise than their own. As Paul states, "clearly…I'm not looking for me." But participants also acknowledge expertise and knowledge in terms of themselves and their collaborators, as seen in the case of Mark and Amanita. Mark emphasizes how Amanita "brings expertise to this [project] that I certainly don't command" and Amanita describes how they both "have different areas of expertise. I have the technical expertise, he has the subject matter expertise."

Perspectives/Viewpoints. Similar to expertise and knowledge, a number of participants emphasize the importance of their collaborator bringing a different perspective or point of view to their collaboration. CoCo mentions this in terms of bringing in a third collaborator who helps view the project from a different perspective. And Dolores feels even collaborators who have a similar background can benefit from having different perspectives:

> The ideal would be somebody who would bring a different perspective to something that I might know from one point of view…between Suzanne and I,

even though we have a somewhat similar background…her perspective as an educator was somewhat deeper and different.

Time and interest. When asked what they look for in a collaborator, some respondents just hope to find someone who would have the time and be interested in collaborating. As Beth puts it, "It's just people's availability – who's around…who's interested, who's willing?" Other participants extend this idea and emphasize the importance of the interest being shared. Paul sees shared interests as a collaboration starting point: "…we share a common interest…that's kind of the entry." For Jane it is important that Chdine's "areas of interest are things that I'm very interested in as well." Even if the project is not a main area of interest, respondents indicate a need for some level of interest in the topic. As CoCo relays, "[Ursula's] got her own research interests, but she is interested in this enough to be part of it."

Beyond being willing and interested, respondents also look for collaborators who will be invested and committed to the work. For CoCo, a perceived level of commitment impacts whether she considers someone a possible collaborator, as she avoids those who seem too busy to fully commit to her project. For others, commitment is seen after the collaboration is underway. As Mike expresses, "we're committed to…moving whatever we're working on forward." Some respondents feel the level of investment dictates whether someone is a collaborator. As Margo expresses "…a collaborator means that you're both taking it seriously… And you're both bringing stuff to the table."

Enthusiasm/Energy. Beyond showing interest, respondents often indicate looking for collaborators who bring enthusiasm and energy to the collaboration. For Beth, enthusiasm manifests as "passion in terms of teaching and learning." Rose feels

that one of the reasons faculty want to work with her is the enthusiasm she shows for their work. And Mark was so enthusiastic about working with Amanita that he contacted her to get started on their project before she had officially started her new position.

Prior relationship. One trait found across six of the cases was being known to a potential collaborator, as most respondents talk about the importance of having already established a relationship with someone before deciding to collaborate with them. Five of the pairs in this study first collaborated in the classroom before branching out into research. For example, Mike and Paul both reference their prior classroom collaboration as a factor in the development of their research collaboration. Often the faculty member expressed a desire or preference for having a prior relationship with a potential collaboration, as seen with Christine, who feels "it helps if I know the person ahead," and CoCo, "I know my personality, I would wanna know the person."

Work style and work ethic. Many participants were interested in how a potential collaborator worked, especially in terms of being responsive and having a good work ethic. This was often due to having a bad experience working with someone who did not meet these standards, as Paul describes:

> …what's nice is someone who's really responsive and gets back to you and does the work. And that's one thing Mike and I have…he works hard and some other collaborators…you wait a long time and…then the person delays…and they finally get back, claiming they've done a lot of work, and it's… so small…

Ursula recognizes this as a factor in her relationship with CoCo and describes herself as "responsive…professionally responsible…I return e-mails and return phone calls." And

Margo describes Beth in a similar fashion, saying "she's dedicated…responsible. She's not flaky."

Another "work-style" trait found in four cases is a preference for working with someone who is interdisciplinary or working across disciplines. Beth emphasizes her own "interdisciplinary spirit" and notes how Margo is "interdisciplinary too". Suzanne also values collaborating across the disciplines and working "with people in really different areas…so, that what I could bring was valuable to them. And what they could bring was essential to me." And Amanita feels that "the kind of faculty who are drawn to those [interdisciplinary] areas are the kinds of faculty I most like to work with."

Collaborator Descriptors

Participants use a number of terms to describe themselves or their collaborators within the relationship, grouped here into four subthemes.

Equals. The concept of being equals within the relationship appears across all seven cases, mostly in reference to how the faculty member treats the liaison librarian. Mike notes that "the wonderful thing about [Paul], is that he's very encouraging and positive. And he never made me feel like I was…secondary at all." Amanita expresses a similar sentiment about Mark who treats her "like an equal partner." From the faculty member's perspective, it is important for the liaison to be seen an equal in the relationship. As Paul shares: "we need to…make sure that Mike is seen…as the strong…equal collaborator that he is." While there were some expressions of liaisons not being treated equally by faculty, all were in reference to other faculty members the liaison had worked with, not the faculty member who participated in the study.

Colleagues, peers, and partners. Respondents also talk about being colleagues, peers, and partners in their relationships. Being a partner or the relationship being a partnership was evident in five of the cases. Amanita talks about having a "complete partnership" with Mark, while CoCo describes her relationship with Ursula as a "partnership in collaboration." Respondents refer to each other as peers and colleagues across six of the cases. The term "colleague" was particularly important to one faculty member, Mark, who feels everyone in college and university settings should be seen and treated as a colleague.

Supporter. Though one faculty member felt the term support was negative when applied to liaison librarian-faculty relationships, being supportive in a collaborative relationship is expressed positively within all seven cases. Paul recognizes the importance of supporting Mike: "He needs to…be supported. His…professional development needs to progress." And while CoCo expresses feeling "guilty at times that I don't support [Ursula] enough," Ursula disagrees: "…she has supported me in meeting my professional mission. And…in terms of personal and professional growth." The one dissenter, Mark, feels that if faculty view liaisons as support then they are not seen as collaborators. His collaborator, Amanita, feels her role is supportive but agrees that in the wrong context the term support can be negative.

Friend. Whether seen as equals, colleagues, peers, partners, or supporters, for five of the cases the relationship is also a friendship. This friendship often develops during the collaboration as participants describe *becoming* friends (Beth, Chdine), *growing* into friends (CoCo), "cement[ing] a friendship going forward" (Dolores), or putting the other "in my category of friends now" (Christine). Others apply levels to their

friendship, referring to their relationship as “good friends” (CoCo), “close friends” (Jane), and “best friends” (Dolores).

Feelings/Emotions

In addition to the collaborator descriptors, participants also describe their relationships based on feelings and emotions; grouped here into six subthemes.

Fun. On the lighter side of the feelings and emotions expressed by participants was the sense of the relationship being fun and enjoyable. Two faculty members express this clearly, including Beth who emphasizes that her collaboration with Margo wasn’t a requirement, but something they did “just because it’s fun and we like it.” Four of the liaisons also discuss their enjoyment of the collaboration, with Jane sharing how she “really enjoyed the way [she and Chdine] worked together,” Dolores indicating how much she and Suzanne “enjoy working together,” Rose mentioning how much fun she had presenting with Christine, and Amanita mentioning Mark’s “great sense of humor.”

Comfort. Many participants felt a general sense of comfort and having a connection. Mike calls his connection with Paul “simpatico,” while Paul feels their work just “synced.” And Suzanne describes how she and Dolores “somehow clicked” after their initial meeting. Rose feels the comfort level she has working with Christine allows her to “never feel like I’m stupid…we can laugh things off.” And in Ursula and CoCo’s relationship, Ursula describes how they “were comfortable with each other” and CoCo saw “this natural affinity to working with each other.” This idea of having a natural connection also appears in two other cases, as Amanita describes her dynamic with Mark as “natural” and “organic,” and Beth discusses the positive impact having a more organic relationship has on her work with Margo.

Gratitude. Some participants describe their relationship in terms of feeling lucky or grateful. Both Rose and Christine talk about how lucky they are to work with each other. And Mike feels "very lucky" that he and Paul "found each other." Beth mentions the serendipity of her relationship with Margo: "I don't know if it was chance, or if it was just meant to be…two people that met pretty randomly that really, really truly care about teaching and learning, and sharing that with others." Feeling grateful for meeting or having the opportunity to work with the other person was seen across three cases, and two liaisons share their gratitude for the impact their relationships have had. Jane mentions how grateful she was that Chdine "took that chance" to work with her since "there weren't many faculty members who would say, 'I'll work with a librarian on this project.'" And Ursula feels that after her initial meeting with CoCo "something changed for me that day. And I'm very grateful for it."

Trust, respect, and feeling valued. Participants also express emotions with more serious connotations and six cases emphasize trust, respect, and feeling valued within the relationship.

Trust. Participants express the role of trust in two ways: trusting their collaborator to do the work and trusting their collaborator as someone with whom they can be open and honest. Liaisons were often the ones to express the importance of trust in their relationships, particularly in terms of the faculty member trusting them. Both Rose and Jane talk about their faculty collaborator "trusting them" to complete important parts of their projects. And Margo shares how Beth "trusts me not to take [her students] down the wrong path." For some, trust means feeling safe sharing with their collaborator as CoCo exemplifies: "I feel like we can confide in each other…know it's gonna be in a

very safe place…I just find her authentic and I don't think she has any motives…so I trust her completely."

Respect. Feeling respected within the relationship is mentioned within all seven cases, though how this respect manifests differs from case to case. For some it was about respecting the other person academically, as seen with Jane who respects Chdine "as a scholar" and Suzanne who talks about her and Dolores having "mutual respect for each other's academic background." Others describe respect in their relationships generally, with Amanita and Mark saying their relationship has mutual respect, Rose feeling "there is a lot of respect" in her relationship with Christine, and Chdine and Jane discussing the respect they have for the other. Another manifestation of respect is seen in reference to time. As Ursula shares, "I'm respectful of [CoCo's] time, and she's respectful of mine." Margo ties both aspects of respect together saying, "the mark of collaboration is…respect for each other and your time."

Feeling valued. For some pairs, trust and respect also lead to feeling valued within the relationship. Interestingly, most of the references to value focus on the value of the liaison. Ursula notes the importance of working with someone who both values and challenges her. And CoCo talks about her "recognition of [Ursula's] value and what she can do for the students, and the faculty." Rose mentions working with someone who "understands the…value of what I am trying to collaborate" and "sees the value in what I do." While Christine, her faculty collaborator, simply expresses that she "value[s] the relationship."

Potential Barriers/Facilitators

While these cases represent successful liaison librarian-faculty collaborations, five factors that can act as collaboration barriers or facilitators were identified.

Institutional status barriers. Barriers related to differences in institutional status between liaisons and faculty were found in all seven cases, as both liaisons and faculty members recognize hierarchical power structures and how these structures can impede collaboration. While it was expected that liaisons would talk about the impact of their status, a surprising number of faculty discuss their awareness of this issue. The three cases where status barriers were most salient were Mike and Paul, Rose and Christine, and Amanita and Mark.

Mike and Paul. For Mike and Paul, the difference in their statuses is seen in how they are viewed on campus. Both are tenured faculty but this rank does not equate to having an equal status on campus. Paul is aware that librarians could be viewed as something less than faculty, even at an institution where they hold faculty status: "I know that…our librarians are faculty. But that may not be universally held…we have even more support and I guess even more status…Whereas, I think librarians might be seen more as staff and staff might not be held in the same [view]." They both acknowledge the difference in their status, though initially it appears to be an afterthought. Once introduced into the conversation, Paul notes the potential impact of the perceived difference in their status and his efforts to combat the issue by strategically positioning Mike higher in their collaboration by listing him first on their article and recent grant application.

Rose and Christine. For Rose and Christine, the difference in status is directly related to their institutional status, with Rose as staff and Christine as faculty. Unlike Mike and Paul, the issues related to status, hierarchies, and power differentials emerged in conversation early and often. Rose, as a liaison, is very aware of how her staff status is perceived as lower than the faculty that she works with: "We don't have faculty status and we're really nothing…I just don't feel like I'm taken all that seriously." And Christine articulates her growing awareness of how her status affords her privileges that Rose does not have. Similar to Paul, Christine makes a conscious effort to advocate for Rose's work and the importance of the library, something that Rose views as "support[ing] my efforts and the library's efforts."

Amanita and Mark. Like Rose and Christine, the difference in status between Amanita and Mark is one of staff versus faculty. But unlike Rose and Christine's situation, Amanita feels her ability to collaborate would be negatively impacted if she had faculty status. Despite preferring her staff status, she acknowledges that status differences can lead to faculty treating her as "basically a glorified office assistant." As a faculty member Mark feels the status difference and what he sees as "a tendency on the part of faculty to not take library science people seriously" can impede collaborations between librarians and faculty. He likens some of this to "a tendency here, and I'm guessing elsewhere…to view library science people as simply support. The way you would view the maintenance department." From his viewpoint, we see the possible impact of another barrier: stereotypical views of librarians.

Stereotypical views of librarians. While the impact of stereotypes on liaison librarian-faculty collaborations is seen in four cases, most of the concern comes from the

liaison's viewpoint. Liaisons often express their frustration with others in academia not understanding what they do and the impact of being viewed stereotypically. Rose relates this to not being seen as a professional:

> …you talk to people and they…connect librarians with books and a quiet place to work…And you're just sitting and reading books. And that is not what we do…I feel like so many people don't know that…it's constantly this compromising of who I am, that this is a professional position, but we're not really seen as professionals.

Dolores feels stereotypical views limit the role faculty feel she can play in their research, as "Some [faculty] are very surprised to find I can also help *them*… I think part of it…comes back to this reputation of librarians as we show you how to use the databases and how to do things." From these quotes we see that from the perspective of the liaison, being viewed in a stereotypical way may impede their ability to collaborate with faculty.

Barriers due to workload. One potential barrier to successful liaison librarian-faculty collaborations found across every case was the liaison's workload. This barrier was often seen when discussing future collaborations, and mostly from the faculty member's perspective. Paul and Mike mention how Mike needed to take a break from their collaborative work after earning tenure, putting another project on hold until he felt he had enough time to do the work**.** CoCo's sense of how much work Ursula is dealing with often led her to hesitate in approaching Ursula with a new project idea "…because I do know Ursula takes on a lot." Chdine and Jane also agree that Jane's workload is impeding their ability to collaborate on a future book project. But the loudest expression of concern about the negative impact of a liaison's workload is seen in Mark and

Amanita's case, as Mark feels the hybrid nature of Amanita's position takes her away from digital initiatives work. What is clear in all the cases is that faculty are aware of what they feel is a heavy liaison workload, and whether the liaison feels their workload is too heavy may not matter if faculty view them as too busy to collaborate.

Supportive work environments. One potential facilitator for liaison librarian-faculty research collaborations is having a supportive work environment. Paul feels "fortunate to have the…environment…institutional support" to work across the disciplines, even if the type of work he does isn't "going to get you promoted." Some liaisons feel administrative support helps them collaborate successfully with faculty, as seen with Dolores who is "very fortunate" to have library deans who always support her collaborative work; and Rose who indicates the importance of having the support of her dean and the provost for her project.

Within these supportive environments, many faculty speak about having flexible positions that allow for a sense of freedom in their work. Chdine has "a lot of freedom" in his faculty position that allows him to do what he loves, which is "talking about architecture, writing about architecture." Beth talks about her choice to remain in an adjunct position because it allows her to choose who she wants to work with: "…if we want to work with a liaison librarian; if we want to do mostly online materials or flipped teaching – we really get the flexibility to do whatever we want." And Paul speaks about having a position that "allows us to be creative and engages us in a way that I…think could benefit students and learning." While only Beth directly relates the flexibility of her position to working with a liaison librarian, the fact that other faculty feel they have

flexible positions or work in flexible environments suggests that it could play a role in forming collaborations with liaisons.

Proactivity/visibility. Another possible facilitator identified across the cases was the impact of liaisons being proactive and visible in their efforts to collaborate with faculty. Many liaisons share how being proactive and visible in their roles, whether through active outreach or maintaining a presence within their supported departments, helps them to develop relationships with faculty and opens the door for future collaborations. Mike likens this to showing interest in faculty's work, creating familiarity that "really can assist in creating opportunities for collaboration." Some participants also suggest that liaisons should base themselves physically within the departments they support as a means of increasing their visibility. CoCo feels this would give Ursula "that visible, physical presence to develop relationships with other faculty" because those faculty would see her as part of the team. And while Ursula does not feel this would be possible in her position, she feels that "more visibility to the nursing faculty in general could be useful." From these cases we see that a highly visible liaison has the potential of facilitating future collaborations.

Summary

The seven pairs featured in this study represent a small sample of the possible liaison librarian-faculty relationships that could be explored. However, each case tells the story of one pair and the dynamics that shape their relationships, but together they offer an opportunity to determine what factors may need to exist in order to develop liaison librarian-faculty research collaborations. The cases of Mike & Paul, Margo & Beth, Ursula & CoCo, Jane & Chdine, Dolores & Suzanne, and Rose & Christine

illustrate how a research collaboration can grow out of a prior relationship established in the classroom while the case of Amanita & Mark shows how a liaison librarian-faculty relationship solely based in research can develop out of liaisons' expanding roles into research data management and digital initiatives.

Though the purpose of this study is not to generalize, cross-case analysis was used to identify commonalities found within the cases. These commonalities were grouped into four broad categories: the traits that participants either search for or found within their collaborators, collaborator descriptors, emotions and feelings expressed about collaborative relationship, and potential barriers/facilitators to forming collaborative research relationships.

Within collaborator traits, the most salient theme, found in all seven cases, was the expertise/knowledge of the collaborator. Both liaison librarians and faculty indicate the importance of either finding this expertise or being able to offer their expertise. Other traits found across several cases include having different perspectives/viewpoints, having time and being interested in collaborating, being enthusiastic or energetic about the collaborative work, having a prior relationship, and collaborators' work styles or work ethic.

Collaborator descriptors offered a way to describe the collaborative relationship. Most prominent within this category was the idea of being equals. This applied equally both to how participants were treated and the work that they performed. Closely related to having equal standing was the importance of being a colleague, peer, or partner within the relationship. While more controversial than other terms, both liaisons and faculty

members also refer to their collaborator or themselves as being a supporter or being supportive. The final descriptor seen across most cases was friend.

Ranging from fun and enjoyment to trust and respect, participants expressed feelings and emotions about their collaborators or their relationships. Nearly every participant referred to having fun or enjoying their collaborations and general feelings of comfort and gratitude were used to describe both working with their collaborator and the collaboration itself. Of all emotions and feelings expressed, trust, respect, and feeling valued appear to hold the most import for participants, especially liaisons who talk about how these factors impact their work.

Outside of being able to describe and define the relationships of this study's participants, cross-case analysis also assisted in the identification of potential barriers and facilitators for creating liaison librarian-faculty research relationships. The potential barriers identified were differences in institutional status, stereotypical views of librarians, and liaison's workload. Within these barriers, status was most often discussed by study participants, who note the negative impact that hierarchies can have on their ability to collaborate with those who hold a different status. Stereotypical views of librarians were also covered in more than half of the cases and connect directly to status issues. The potential barrier of liaisons' workload was mentioned as often as status differences, and was often seen as the reason why participants were struggling to find time to work on future projects together.

Two facilitators were also identified within the cross-case analysis: supportive work environments and liaison proactivity/visibility. Within more than half of the cases, having a supportive work environment was cited as a reason for successful

collaborations. This support ranged from having supportive colleagues, to having financial and other support provided by the institution. The other potential facilitator, liaisons being proactive and visible, was seen as paramount for being identified as a potential collaborator by faculty. This idea of being visible relates directly back to the previously identified theme of being known to a potential collaborator, indicating an overlap of the factors that impact the development of liaison librarian-faculty research collaborations.

In the next chapter, I will address the relationship of the quantitative and qualitative findings to the literature and existing theoretical frameworks on liaison librarian-faculty collaborations. Additionally, I will discuss the integration of the quantitative and qualitative findings, along with study implications, limitations, and suggestions for future research.

CHAPTER 6:

DISCUSSION

One of the earliest mentions of academic librarians as liaisons is found in A. Graham Mackenzie's 1965 article that discusses "subject specialists" who serve as "liaison with the teaching staff" (p. 115). Today, the liaison librarian position has become common, and while no exact count could be found, this study identified 1,122 institutions (approximately 27% of higher education institutions in the United States) that employ librarians who perform liaison work. In the preface of their 2014 book, *Fundamentals for the Academic Liaison,* Moniz et al. share that they wrote the book because they "believe that library liaisons are at the forefront with regard to the future of library services in this technological age" (p. vii). A review of the literature since 2014 appears to support this view – searching just the *Library, Information Science, & Technology Abstracts* database finds nearly 700 articles about liaison librarians. This abundance of articles indicates the importance of the academic library liaison role, but not a clear picture of what that role entails.

Moniz et al. (2014) state that "The establishment of relationships with the faculty they serve is the cornerstone of good liaison work" (p. viii.). While this may be true, recent literature includes few articles that discuss liaison-faculty relationships (less than 70), mostly focuses on teaching collaborations, and does not discuss the actual

relationship. The paucity of information about liaisons' roles and their faculty relationships provides the impetus for this study, which had two distinct goals:

1. Define the work that academic liaison librarians perform as part of their efforts to support the work of faculty in their assigned departments; and
2. Explore the dynamics of the liaison librarian-faculty relationship in order to understand the individual, organizational, and societal factors that may influence this relationship, with a particular focus on the liaison librarian-faculty research collaboration relationship.

A sequential explanatory mixed-methods study was designed to address these goals and answer eight research questions: three quantitative and five qualitative. This chapter discusses the quantitative and qualitative strand findings in relation to the research questions and the strands' points of interface (integration). This chapter also addresses the findings' theoretical context, study implications, limitations, and suggestions for future research.

Discussion of Quantitative Findings

Quantitative data analysis found many statistically significant associations between organizational and individual factors and the work performed by liaisons, liaisons' perceptions of the relationships they've built with faculty, and liaisons' confidence in supporting faculty research activities. Discussion of these associations and their alignment with the literature are presented for the three quantitative research questions.

Research question 1: Is there an association between organizational and individual factors and the type of work liaison librarians perform? This study

hypothesized that there is an association between organizational and individual factors and the type of work that liaison librarians perform. Quantitative analysis supported this hypothesis and found associations between 11 of the organizational and individual factors explored in this study and the different types of liaison work. Of these 11 factors, only three are addressed within the literature in relation to types of liaison work: having an additional post-graduate degree related to the liaison areas supported, institutional status of librarians/liaisons, and disciplinary focus of liaisons' supported areas.

Additional post-graduate degree. Having an additional post-graduate degree related to supported liaison areas was significantly associated with providing instruction services. This finding is similar to two studies addressing liaison's educational level and work responsibilities. Attebury and Holder (2008) found that as liaisons' education level increased, so did the likelihood of engaging in instruction services. More recently, Day and Szurek (2018) found that respondents with an advanced degree "had a statistically higher rate of performing reference and instruction job duties" (p. 141). Neither of these studies looked specifically at whether the liaison's degree was related to the liaison areas supported, but in conjunction with the current study, the results suggest that various aspects of liaisons' education impact whether liaisons are engaging in instruction services.

Institutional status of librarians/liaisons. Respondents working at institutions where librarians have tenure track faculty status more often than expected indicated engaging in collection development. This refutes the suggestion made by Hoggan (2003) that the responsibilities that come with faculty status "detract from time spent on traditional librarianship duties" (p. 436) like collection development. The current study

also found that respondents who themselves have tenure track faculty status more often than expected indicate engaging in outreach, while those who are already tenured more often than expected indicate not engaging in outreach. The literature does not discuss faculty status and outreach specifically, though the implication is that liaisons who have earned tenure do not need to engage in outreach compared to those who have yet to earn tenure. This association will need to be further explored to better understand the impact of faculty and tenure status on liaisons' outreach efforts.

Discipline focus of liaisons' supported areas. Respondents who support areas in the Arts & Humanities more often than expected indicated performing collection development. While the literature does not mention discipline-area impacting whether or not collection development is performed, it does suggest that those supporting the Humanities may be more active in working with faculty on collection development (Divay et al., 1987) and more likely to engage in developing digital collections (Green & Fleming-May, 2015; Griffin & Taylor, 2017). This increase may be related to the Digital Humanities movement that finds academic libraries offering space for digital collection storage (White, 2016) and offering the services of liaison librarians to support the development of these collections (Sula, 2013). The Digital Humanities movement will be an area to watch, especially in terms of how it impacts the work of liaisons.

Other significant associations. While significant associations were found for eight other factors, these factors are rarely addressed in the literature. One factor that is introduced in the literature through discussions of liaison workload is the percentage of respondents' positions devoted to liaison work. The current study found that respondents who devote less than 25% of their position to liaison work less often than expected

indicate engaging in outreach. This finding aligns with the profile of liaisons described in Arendt and Lotts' (2012) study, where most liaisons spent around 10 hours on liaison work and were mostly unknown to the faculty in their departments. It is possible that faculty were unaware of the liaisons in Arendt and Lotts' study due to a lack of outreach on the part of the liaison.

Significant associations found for time in the profession and performing instruction services and engaging in outreach actually contradict previous findings in the literature. Attebury and Holder (2008) found that librarians with four or more years in the field were more likely to engage in instruction services. The current study did not find a significant association between time in the profession and providing instruction services. Another study by Bullers et al. (2018) found that more experienced medical librarians spent more time educating and interacting with faculty – two forms of outreach – than those with less experience. In contrast, the current study found that respondents who have more time in the field less often than expected indicate engaging in outreach, while those with fewer years more often than expected indicate engaging in outreach. Variance in how outreach was defined and Bullers et al.'s (2018) focus on medical librarians may explain the difference in findings between the two studies.

Research question 2: Is there an association between organizational and individual factors and liaison librarians' perception of their ability to build relationships with faculty? This study hypothesized that there is an association between organizational and individual factors and liaison librarians' perception of their ability to build relationships with faculty. Quantitative analysis supported this hypothesis and found associations between 15 out of the 17 factors explored in this study and

respondents' perception of their ability to build relationships with faculty. Five of these factors appear within the literature to some degree: holding an additional post-graduate degree, having an additional post-graduate degree related to the liaison areas supported, discipline focus of supported areas, time in position, and percentage of position devoted to liaison responsibilities.

Additional post-graduate degree. Respondents in the current study who had an additional post-graduate degree and those whose additional post-graduate degree related to their liaison areas more often than expected indicated their knowledge of faculty members' subject areas helps them to build relationships with faculty. This supports Day and Szurek's (2018) finding that 87% of respondents who held an advanced subject degree felt their degree helped them to perform as liaisons – including their ability to communicate and collaborate with faculty. Though the current study approaches the question from a different direction, both studies provide evidence that holding an additional post-graduate degree impacts faculty relationship-building.

Discipline focus of supported areas. Respondents who support STEM areas were more likely to indicate issues with their faculty relationship-building experiences, including not spending a lot of time building relationships, feeling their knowledge of faculty members' subject areas did not help them build relationships, feeling that faculty did not treat them like a peer, and being less satisfied overall with the relationships they've built with faculty. Divay et al. (1987) found that faculty in the physical sciences did not value their liaison having a graduate degree in their subject as much as faculty in other disciplines. Similarly, Yang (2000) found that faculty in the sciences were more likely to not consider their liaison's subject background to be important compared to

those in liberal arts. And Oberg, Schleiter, and Van Houten (1989) found that science faculty at Albion College were the least likely to view librarians as their academic equals.

Historically, STEM faculty have shown less interest in research assistance from librarians. Budd and Coutant (1981) found that 65% of surveyed faculty at their institution felt librarian assistance with teaching and research was important, but only 6% of science and technology faculty felt this way. Ducas and Michaud-Oystryk's (2003) found that science faculty requested assistance from a librarian "significantly less often" (p. 59) than faculty in the humanities or social sciences, and were more likely to feel librarians should not be part of their research projects. Gabridge (2009) asserted that faculty in the sciences did not see librarians as equipped to assist them with their data curation needs. And recently, Brown and Tucker (2013) found that their institution's science faculty were more resistant than other discipline areas to the library taking an active role in supporting research. Only 45% of science faculty in their study indicated it was important for the library to have a subject librarian provide research assistance, and 79% never or infrequently consulted with librarians on research-related topics (Brown & Tucker, 2013). The current study provides additional support for the resistance experienced by liaisons who support STEM areas when attempting to build faculty relationships.

Time in position and percentage of position devoted to liaison responsibilities. Respondents in the current study who had been in their current positions longer and those who had higher percentages of their position devoted to liaison responsibilities were more likely to rate their overall relationship-building experiences as positive. This supports Arendt and Lotts' (2012) finding that liaisons who spent more time on liaison activities

and those who had been at their institutions longer were more likely to perceive their liaison relationships as successful and satisfying. Additionally, respondents in the current study who had been in the field longer were more likely to agree that faculty respect their work, more likely to disagree that faculty treat them as a subordinate, and more likely to be satisfied overall with their faculty-relationships. This aligns with Major's (1993) study of mature librarians who felt that their extended length of time at the institution led to faculty seeing them as colleagues, and that their faculty relationships got better with time.

Research question 3: Is there an association between organizational and individual factors and liaison librarians' confidence in their ability to support faculty research? This study hypothesized that there is an association between organizational and individual factors and liaison librarians' confidence in their ability to support faculty research. Quantitative data analysis supported this hypothesis. Overall, respondents in this study had little to no confidence in their ability to support most of the faculty research activities explored, but differences were found in confidence related to organizational and individual factors. While the literature addresses many of the factors explored in this study and all of the faculty research activities, very few studies address them together, and even fewer empirically focus on liaisons' confidence.

One study that did look at academic librarians' confidence in their ability to perform different steps of the research process found that two-thirds of the librarians surveyed were very confident in their ability to perform literature reviews (Kennedy & Brancolini, 2012). Only one-third of the current study's respondents indicated being very confident in their ability to compile literature reviews for faculty. Nearly 40% of the

respondents in Kennedy and Brancolini's (2012) study also indicated being confident in their ability to gather data for research. Fewer respondents in the current study indicated being confident in their ability to assist faculty with either quantitative (17.8%) or qualitative (26.2%) data collection. The difference in confidence levels may be due to respondents performing these activities for themselves (as in Kennedy and Brancolini's study) versus performing them for someone else.

Another finding in the current study suggested in the literature was related to disciplinary focus of respondents' liaison areas. Respondents who supported Professional Programs more often than expected indicate being very confident in their ability to serve on a faculty member's research team. This resembles Lessick et al.'s (2016) finding that one-third of the surveyed health science librarians felt they were highly skilled in collaborative team research (p. 169). The current study does not identify health sciences separately (they were grouped into Professional Programs) and skills and confidence do not necessarily correlate, but the similarity of findings suggests a relationship between working with specific disciplines and confidence to participate in faculty research collaborations.

Discussion of Qualitative Findings

Interview transcript data analysis addressed the study's five qualitative research questions. The findings are discussed for each question utilizing data from the cases and within the context of the literature.

Research question 4: How do liaison librarians and faculty perceive the liaison librarian-faculty relationship? Analysis of the seven cases revealed a variety of perceptions about the liaison librarian-faculty relationship from the perspectives of the

liaisons and faculty members engaged in those relationships. Overall, relationships were perceived as positive and often described as natural/logical, necessary, or unique.

Natural/logical. For some participants, their relationship was seen as natural, almost logical. The idea of liaisons and faculty working together just made sense due to the project's discipline or subject area. This is seen in Rose and Christine's case where Rose presents the project to Christine as logical due to the connection between information literacy (Rose's area) and writing across the curriculum (Christine's area). And CoCo sees a "natural tendency" and a "natural affinity" for those in the nursing profession to work with librarians.

These participants' sentiments align with much of the literature on liaison librarian-faculty relationships. Díaz and Mandernach (2017) referred to "the natural synergy that exists between librarians and faculty members" (p. 276). Scherdin (2002) discussed the similarities between librarian and faculty's personalities that make them "natural colleagues" and "natural partners in academic endeavors" (p. 237). One article referred specifically to librarian-faculty research collaborations, calling them "a natural outgrowth" of the library's mission (Brandenburg et al., 2017, p. 273). And many articles contend that liaisons and faculty share mutual goals and objectives (see Dilmore, 1996; Herbert & Depalma, 2004). However, there are also dissenting views in the literature, as librarians and faculty are portrayed as having different academic agendas or goals (Given & Julien, 2005) or being "driven by separate agendas" (Wijayasundara, 2008, p. 188). The cases in this study support the idea that shared research areas or disciplines foster the development of liaison-faculty relationships.

Necessary. Echoing Christiansen et al.'s (2004) suggestion that librarians and faculty members were "mutually dependent" and "necessary to the successful functioning of any academic institution" (p. 117), some participants felt the liaison librarian-faculty relationship is necessary for some aspects of their work. CoCo noted this from a faculty member's perspective as a "need for faculty and librarians to collaborate with each other." This view echoes one shared by a faculty member in Díaz and Mandernach's (2017) study who referred to collaborations between faculty and liaisons as a necessity. From the liaison's perspective, Rose felt that liaisons and faculty "should be working together" in order to meet the needs of the students. Her viewpoint aligns with suggestions in the literature that librarian-faculty collaboration is essential to support student learning and research (Baker, 1989; Lindstrom & Shonrock, 2006; Schlak, 2016; Yousef, 2010).

Unique. The literature suggests that liaison librarian-faculty relationships are unique in nature, though the term as used by Díaz and Mandernach (2017) appears to mean "individual" or "distinct" rather than "rare." Participants in the current study perceive their relationships as unique or outside of the norm within their academic settings. This perspective is seen from both faculty and liaisons who describe their relationship as "a unique collaboration" or feel there is "something unique in our relationship." Liaisons often described the relationship as "rare," unexpected, or "really different" from other collaborative relationships they have formed. And participants often expressed an interest in understanding the factors that made their relationships unique so that they could replicate them within their other collaborative projects.

Research question 5: What role do academic liaison librarians believe they play in supporting faculty research? Interviewed liaisons did not hold a universal view of the role they play in supporting faculty research. Similar to the view found in most liaison librarian literature (e.g., Carlson & Kneale, 2011; Donham & Green, 2004; Epstein & Rosasco, 2015; Foutch, 2016; Hendrix, 2000), the liaison's role often focused on the application of their library research skills. But some liaisons took on roles beyond this, including article reviewer, editor, project manager, trainer, student supervisor, grant locator, and co-author. Jane's work with Chdine showed a number of these extended roles as she took on project organization while also completing research, writing book entries, and handling image copyright permissions. And in Amanita and Mark's case there was even more variation in the liaison's role, as Amanita worked to train student workers, developed metadata, and co-authored a grant application. In the literature these roles are all suggested as possible for liaisons, particularly supporting grant applications (Brandenburg et al., 2017; Creaser & Spezi, 2014; Federer, 2013; Fonseca & Viator, 2009; Rodwell & Fairbairn, 2008; Silver; Stoddart et al., 2006), training student assistants (Stoddart et al., 2006), and managing projects (Brandenburg et al., 2017; Case, 2008; Neal, Parsonage, & Shaw, 2009). This study's cases show these suggested roles as reality.

Research question 6: What role do faculty members believe academic liaison librarians play in supporting faculty research? Interview responses indicated that some faculty see liaisons as having a primary role in supporting faculty research while others do not. Similar to the faculty interviewed by Zoellner, Hines, Keenan, and Samson (2015) and those surveyed by Yang (2000) and Cooke et al. (2011), faculty in

this study often placed liaisons on the outside of faculty research, while maintaining their role in the classroom. Even when their collaborative relationships resulted in a published research article, some faculty felt the value of the liaison was in what they brought to the classroom. For those who did see a role for liaisons in supporting faculty research, the emphasis was placed on collections, access to resources, and literature searches. This view showed no change from the perspective held by faculty Christiansen et al. (2004) spoke to nearly fifteen years ago; and echoes findings and suggestions from the literature (Brown & Tucker, 2013; Brydges & Clarke, 2015; Schulte & Sherwill-Navarro, 2009; Thull & Hansen, 2009).

Three faculty members did view liaisons as having very distinct roles in supporting faculty research beyond application of their search skills. Beth saw a role for liaisons as co-authors of books and co-presenters at conferences; Chdine suggested liaisons could be "literary" editors, taking over the role no longer offered by many publishers; and Mark emphasized Amanita's role in helping to grow the digital repository of their institution. Within the literature, the liaison's role in supporting development of a digital or institutional repository is most common (Brydges & Clarke, 2015; Goetsch, 2008), though liaisons as co-authors is also suggested by librarians (Broughton, 2016; Gore & Jones, 2015; Malenfant, 2010; Silver, 2014; Tennant et al., 2006) and some faculty (Hollister & Schroeder, 2015). The faculty responses in this study show that these research support roles would be welcomed by some faculty but they are still not common.

Research question 7: How do librarians view research collaborations between liaisons and faculty? Similar to the perception of the liaison librarian-faculty

relationship as "unique," most liaisons viewed research collaborations with faculty as rare and, in many ways, unexpected opportunities. This was evident in Amanita's reference to a faculty member inviting her to collaborate on a publication as "one of the coolest things." This sense of surprise is also found in the literature. Malenfant (2010) described a liaison being invited to co-author a book chapter with a faculty member as a "success story" (p. 69), her language suggesting the rarity of that opportunity. The literature indicates that co-authorship between librarians and faculty is indeed rare. Ducas & Michaud-Oystryk (2003) found that only 7% of faculty in their study had collaborated with a librarian on a research project (p. 62). Of those who had not collaborated with a librarian, more than half had not considered it, 20% felt they didn't have the time, and 17% felt librarians were either not capable or should not be part of research projects (Ducas & Michaud-Oystryk, 2003). Ten years later, Norelli and Harper (2013) used frequency analysis of library literature to show that while co-authorship was increasing, faculty-librarian collaborations were still low. And Gore and Jones (2015) advocated for liaisons determining if their role in the systematic review process warranted co-authorship credit, since co-authorship was not guaranteed and the liaison's role was often not acknowledged within publications.

Research question 8: How do faculty view research collaborations between liaisons and faculty? The faculty members in this study viewed their research collaborations with liaisons as no different in structure than any other interdisciplinary collaboration, though not the norm in terms of occurrence. Like interdisciplinary collaborations, some viewed these research collaborations as positive for the institution as a whole. Paul expressed this when talking about his cross-disciplinary collaborations

with teaching and learning colleagues. And Mark takes this view even further, seeing faculty-library research data management collaborations as a way for institutions to advertise the creativity of faculty work and bring positive attention to the institution. These views are not articulated within the literature as most studies about liaison librarian-faculty relationships do not include faculty members' viewpoints. The few studies that do include faculty views do not ask specifically about research collaborations (see Arendt & Lotts, 2012).

Integration of Quantitative and Qualitative Strands

As previously discussed in this chapter, quantitative data analysis revealed a number of significant associations between organizational and individual factors and liaisons' work, perceptions of their relationships with faculty, and confidence in supporting faculty research. These significant results only act as an indicator that an organizational or individual factor is somehow related to liaisons' work and perceptions. What they do not show is how these associations manifest for liaison librarians, particularly within the liaison librarian-faculty research collaboration. The data collected for the qualitative strand of this study offer an opportunity to further explore these significant associations and provide some understanding of the influence of these organizational and individual factors.

Factors associated with type of work. In a recent article, Church-Duran (2017) argued that outreach "has evolved into a conceptual hub around which all other aspects of the job now radiate, surpassing even the historical centrality of collection development" (p. 263). While data from the current study do not support this (only 60.3% of respondents indicate engaging in outreach, compared to 87.4% and above for the other

types of work), of the four types of work, outreach is associated with more organizational and individual factors (eight). The qualitative data offered some sense of how these associations manifested for two of these factors: length of time in current liaison position and percentage of liaisons' positions devoted to liaison responsibilities.

Impact of length of time in position on outreach. Engaging in outreach was more likely for liaisons who had been in their current positions for a fewer number of years. One possible explanation for this difference was found in Rose and Christine's case. Rose describes a natural decline in outreach due to her ability to build successful relationships:

> …at the very beginning, just making some in-roads with faculty – I would…send e-mails…twice a year…to remind them that…[w]e offer tailored library sessions to their students…then I started reducing the amount of times that I approached them…I don't send any more e-mails or ask them, because…I think that I've established a good relationship with that department.

Rose indicated that this difference in her outreach efforts also applied when she was given a new liaison area: "…I really did do a lot more outreach to faculty when I took over English. It was…my way to connect."

Rose's experiences suggested a positive explanation for the difference in outreach efforts, but a negative explanation was found in Ursula and Amanita's liaison experiences. Ursula, who has been in her current position for six years, felt she does less outreach to new faculty than she would like due to a heavy workload. Similarly, Amanita, who has only been in her position for three years, felt she is not currently "in a position to do much outreach" due to how busy she already was. She provided a

contradiction to the quantitative finding that those who had been in their position for less time more often than expected indicated engaging in outreach. This suggests that a liaisons' workload may be mediating the relationship between time in position and engaging in outreach.

Impact of percentage of liaison's position devoted to liaison work. For some respondents, liaison work was not the main focus of their positions. Respondents who devoted a lower percentage of their position to liaison work less often than expected indicated engaging in outreach. While every liaison who participated in interviews was engaged in some type of outreach, those with positions that involved more than liaison work were more likely to indicate decreasing their outreach efforts. Ursula offered a prime example of this:

> …along with being [a technical services librarian], I'm also liaison to the…School of Nursing…And…I have other responsibilities as well. I'm part of a first-year initiative…I have a fair amount of teaching and outreach…and a lot of stuff doesn't get done…

For Ursula, one of the things that did not get done as often as she would like was liaising with new faculty.

Liaison workload. As mentioned, liaisons' workload appeared to impact outreach. While factors that translated into workload were explored in the quantitative strand, including number of liaison areas and number of faculty supported, participants in the qualitative strand did not reference these factors as impacting their outreach efforts. However, some liaisons indicated that having a heavy workload in general impacted their ability or decision to engage in outreach. Dolores noted this in terms of her attendance at

liaison area departmental events, a method of outreach she used to connect with faculty and students: "I used to go more often than I do – I got too busy." Margo saw her decision to reduce her outreach to classes where she collected data on student's information literacy skills as necessary now that there are fewer people working on the project: "…I'm doing a lot more of the [Tutorial] scoring and I just can't keep up with that. So, I'm not going out, knocking on doors, saying "Please, can we run [Tutorial] in your class?" because I don't have the ability to pull that data." Additional research needs to be done to better understand the impact of workload on the work of liaison librarians and how this translates into their ability to form collaborative research relationships with faculty.

Relationship building. Liaisons' responses to statements about their relationship building experiences with faculty were associated with nearly all of the organizational and individual factors explored. Within the qualitative data, there was evidence related to three factors: discipline focus of supported areas, liaison's education, and liaison's institutional status.

Impact of discipline area. Quantitative analysis indicated that the discipline focus of liaisons' supported areas was associated with how liaisons perceived a number of aspects of their relationships with faculty. STEM disciplines were often the trouble area, as liaisons who supported these areas more often than expected felt faculty don't seek them out, welcome them, treat them as an equal partner, or treat them like a peer. Dolores had liaison responsibilities to STEM areas, and while her relationship with Suzanne was positive, she indicated issues when working with other faculty in the STEM

disciplines. One thing she noted was not always feeling like an equal partner in some of her collaborations:

> I'm having a little problem at the moment with my chemistry project, because my chemistry collaborator has been so ridiculously busy that I've done most of it…I think, when you collaborate with somebody and it appears that you're going to do most of the work – they will tend to let you do that. I hasten to point out that Suzanne is not one of those. Suzanne and I were very much equal partners. But, in general…I do find in most of my collaborations, I end up doing most of the work.

It should be noted that the liaisons who supported other disciplines also experienced similar issues. Jane felt she was not seen as an equal by some faculty in the art and architecture department she supports:

> …there are definitely some more than others who…I don't wanna say they were really disrespectful [sighs], but I don't think that they really saw us as being on the same level…It was…"You're there to help me…I need the slide, why isn't it here?" That kind of thing.

The liaison interviews indicate that liaisons may experience similar issues when trying to build relationships with faculty regardless of the discipline area support. Other factors besides discipline are likely involved.

Liaison's education. Associations between liaisons' education and perceptions of their faculty relationships were prevalent in the quantitative results, with most associations related to whether liaisons held subject degrees (either undergraduate or post-graduate) in the liaison areas they support. Respondents who held a degree related

to their liaison areas more often than expected felt their knowledge of faculty's subject areas helped them to build relationships. This finding was supported both directly and indirectly by the qualitative data.

For some liaisons, there was a clear connection between their education and their faculty relationships, though the strength of that connection varied. Jane felt her education played a role in her relationship with Chdine "…to some extent…Because I do have an art history background." Amanita felt her education "created a potential connection" with her faculty member. And Dolores felt her education was crucial to her collaboration with Suzanne, as she "can't imagine having done the collaboration I did with her…if I didn't have a PhD in a relevant area." These liaison quotes support the idea that having a related degree is important for building successful collaborative faculty research relationships.

Liaisons' institutional status. Liaisons with staff status more often than expected disagreed that they were equal partners in the relationships they've built with faculty and that faculty treated them like a peer. They also more often than expected agreed that some faculty treated them like a subordinate and that they worried about their ability to build relationships with faculty in their liaison areas. Three of the liaisons interviewed held staff status at their institutions (Jane, Rose, and Amanita), and throughout their interviews they expressed how their status impacted their ability to form collaborative relationships.

Rose felt her staff status left her in a position unequal to faculty, something she expressed when describing how she approaches faculty to talk about collaborating:

> …when I talk to faculty, I [would] really rather not use the term "using us" because it's not about that. But collaborate with us. Work with us. Consult with us…I can't really tell them we're equal, because for some…the fact that they have a PhD and I just have a master's is enough to create the tension…Some can care less and others…I am at their service.

Rose also verbalized the worry that some liaisons have about their ability to form relationships with faculty: "...it's scary to me too, because I think…what if the faculty hate me, and they really want somebody else?...I don't know that it's true…I don't feel that way. But…you never know. Maybe one person prefers somebody else." Jane's staff status left her feeling that some faculty at her institution would not work with her the way that Chdine did:

> There are faculty who wouldn't consider it. But it varies by department…There are some departments that…would never consider a librarian to be anywhere near their equal…others would. But even within [Chdine's] department, I think most wouldn't have asked me.

This indicates a clear barrier to forming collaborative research relationships with faculty who do not view the liaison as an equal.

Amanita's experiences offered a dissenting view, as she felt faculty status would limit her ability to collaborate within her position:

> …there…is so much potential for collaboration there, but to be free to do that collaboration, it should be a different role than a faculty member…if…I were treated as faculty and I had the priorities of teaching and publication, it would be harder to collaborate.

Despite this view, she acknowledged that some faculty have not treated her as an equal due to her status:

> ...there is often a mistake made where faculty think that the role that I'm in is more mechanical or more simple…than it actually is…I certainly have been in situations where faculty…come to me with…"I just need you to do such and such." And they clearly don't realize the entire stack of technology and knowledgebase and everything that is behind that.

Amanita's experience shows that staff status can be viewed positively by a liaison but still have a negative impact on the liaison's ability to form faculty relationships.

The four remaining liaisons interviewed held faculty status, most of them tenured. While they did discuss their status, it was mostly in reference to research expectations and less about their faculty collaborations. The one exception was Margo, who felt her faculty status gave her the standing she needed to collaborate in the classroom with teaching faculty. These differences in experience between liaisons with staff status and those with faculty status suggest that while not a panacea, having faculty status is more likely to facilitate liaisons' ability to form faculty relationship than act as a barrier.

Confidence. The design of the study limited the ability to utilize the qualitative data to further understand how liaisons' confidence in supporting faculty research was associated with organizational and individual factors. However, the qualitative data did offer some insights into why liaisons might be less confident in supporting some research activities compared to others, and the overall role that confidence plays in liaison-faculty research collaborations.

Very confident. Overall, most survey respondents expressed high levels of confidence in supporting faculty research activities that librarians commonly engage in: instructing faculty on how to locate sources to support their research and assisting faculty with properly citing their sources. Within the seven cases, liaisons instructing faculty on how to locate sources to support their research was often seen as a by-product of classroom collaborations. Faculty learned how to locate sources during the liaison's student instruction sessions. Liaisons are likely very confident in their ability to instruct others on how to locate sources as it is a common part of the work they perform.

Confident. There were eight activities where on average liaisons felt "confident" in their ability to support faculty. Of these activities, the seven liaisons who participated in interviews engaged in three of them: assisting with understanding copyright; assisting with adding items to an institutional repository; and assisting with compiling literature reviews. For all three activities the liaisons' level of support varied based on the context of their collaborations.

Jane provided two examples of copyright support, offering general workshops on how to properly locate and use copyrighted images, and clearing copyright for the images used in her collaborative book project with Chdine. While her confidence in performing these activities was not discussed, Jane likely had a high level of confidence in these areas due to her experiences working with images in the slide library. Amanita was the lone liaison to mention adding items to an institutional repository. There were no concerns with her confidence to perform this work as her position focuses on digital initiatives and building the institutional repository. Compiling literature reviews was indicated by two of the liaisons with neither expressing concerns about their confidence

in this area. But one liaison did express concerns about her confidence to support systematic reviews, an activity similar to literature reviews. Ursula expressed an interest in learning more about how to conduct a systematic review so that she could be more confident in her ability to "support [CoCo's] research and other's research in that way."

Little to no confidence. For most of the research activities, survey respondents had little to no confidence in their ability to support faculty. Within the interviews, liaisons discussed many of the activities including those related to quantitative and qualitative data, research data management, and writing-related activities.

Confidence working with quantitative and qualitative data. On average, liaisons had little to no confidence in their ability to support faculty research activities related to quantitative and qualitative data, especially data collection and data analysis. While the interviews hinted at this lack of confidence, there was also evidence of liaisons engaging in these activities within their own work. Margo talked about the quantitative data she collected as part of her classroom-based projects. Rose mentioned collecting both types of data from students in the courses she works with:

> …they do a post-survey at the end of the semester and it's both quantitative and qualitative. So, we have…some numbers for the stats-inclined. And then we have more of the evaluative, qualitative kind of comments. Which to me are very important.

And Suzanne pointed out how Dolores actually handled the statistical analysis for one of their collaborative publications. These experiences suggest that some liaisons do have the confidence and ability to work with quantitative and qualitative data.

Confidence related to research data management. Survey respondents also had little to no confidence in their ability to support research data management related activities. With the exception of Amanita, the qualitative data was devoid of references to this type of work. As the digital initiatives liaison for her institution, Amanita's position is dedicated to this type of work and she collaborated directly with faculty to add items to the repository. Additionally, the purpose of her collaborative project with Mark was to store, secure, and share his research data. The implication here is that liaisons in traditional positions may be working with faculty in these areas, but libraries may be moving towards creating specialized positions for this type of work.

Confidence in writing-related activities. On average, liaisons indicated being only "somewhat confident" in their ability to co-author research articles with faculty and review faculty drafts prior to submission. Some of the liaisons in this study supported this finding, expressing lower levels of confidence to engage in these activities. For Jane, who was asked to review drafts of work by two faculty members, her confidence in doing so was related to the subject matter of the work:

> …the more departments you have, the harder it is to feel…confident enough to…make judgments on…someone's writing…I definitely feel confident with Chdine's because I know so much about what he's writing. And, I felt somewhat competent when I worked with…the other professor just because I had the art background. But would I feel comfortable doing that with someone in anthropology? I'm not so sure.

Jane clearly connects her confidence to her own subject knowledge, suggesting that liaisons' confidence to support editing or writing activities may be increased by increasing subject knowledge in the faculty member's area.

Six of the research collaborations in this study involved co-authoring, and three of the liaisons indicated co-publishing with other faculty. Co-authoring was the initial goal of only one of the collaborations, a project that was initiated by the faculty member. Mike, the liaison involved in the collaboration, indicated his lack of experience with this type of academic collaboration and relied on his faculty member to guide the process. But the remaining collaborations led to opportunities to co-author publications and for some had additional benefits. Ursula's co-authoring experience empowered her and increased her confidence in her ability to do her own research. The amount of co-authoring found in these collaborations indicates that while liaisons may not necessarily start out with high levels of confidence in their ability to co-author publications with faculty, they are taking the opportunities when they arise and gaining confidence through the process.

Alignment with Theoretical Frameworks

Throughout this study, two theoretical frameworks were used to guide the development of research questions, survey and interview questions, and data analysis: Hara et al.'s (2003) research collaboration framework and Schlak's (2015) social capital framework. This section applies these frameworks to discussion of the study's seven cases and cross-case analysis.

Research collaboration framework. In their 2003 article, Hara et al. presented an emergent framework for the development of collaborative work for scientists in a

research setting. The framework classified research collaboration into two types (complementary or integrative), and also identified four factors that influence collaboration: personal compatibility, work connections, incentives, and infrastructure (Hara et al., 2003). This framework and the associated factors that may influence collaboration offered a structured way to view this study's seven collaborative research relationships.

Complementary versus integrative collaborations. Hara et al. (2003) identified two types of collaborations existing on a continuum: complementary and integrative. Complementary collaborations are based on the knowledge and skills of the participants, specifically "the complementary fit of those knowledge/skills" within the research process (Hara et al., 2003, p. 959). In a complementary collaboration, rather than working closely throughout the project, each individual is responsible for a part of the process that when combined results in something that "is bigger than what any member could accomplish by themselves" (Hara et al., 2003, p. 959). Integrative collaborations, on the other end of the continuum, require participants "to work closely together throughout the research process" (Hara et al., 2003, p. 959). This close work includes having shared responsibility for the different aspects of the project, from idea development to reporting of results, and requires aspects of respect and trust (Hara et al., 2003). Elements of both complementary and integrative collaborations were found within this study's seven cases, though most of the collaborations would best be classified as somewhere in between the two types.

Elements of complementary collaboration. As discussed within the cross-case analysis, the idea of complementary knowledge or skills within the liaison librarian-

faculty collaboration was found in all seven cases. While both liaisons and faculty members discussed the importance of expertise, faculty tended to use language nearly identical to the scientists in Hara et al.'s (2003) study. This was seen in Suzanne's description of a collaborator as "someone who brings a different skillset, and that together we…do something that neither of us could do on our own." Considering she is a scientist, the synchronicity of her language with that of the scientists in Hara et al.'s study is not surprising. But faculty from other disciplines, like business faculty member Paul and architecture faculty member Chdine, also echoed these words. From the perspective of faculty members, these similarities imply that the elements needed for a successful complementary collaboration are fairly uniform across discipline areas.

Elements of integrative collaboration. The elements of an integrative collaboration, from the idea of working closely together on all aspects of the research project, to the respect and trust needed, was also found throughout the seven cases. Working closely on all aspects of the project from idea development to publication is particularly evident within Paul and Mark's case as they developed their research study. Similarly, Dolores' description of her relationship with Suzanne emphasized how closely they worked together on the development and completion of their collaboration. Beyond working closely together, the importance of trust and respect was evident in most of the cases. Trust and respect in an integrative collaboration is both personal and professional (Hara et al., 2003), and the liaison-faculty relationships in this study exemplified this. Liaisons were more likely to talk about the importance of trust and respect, though faculty also discussed the development of trust and having mutual respect in their relationships.

Personal compatibility. Hara et al. (2003) found that compatibility could impact research collaborations among scientists. The type of compatibility needed for a successful collaboration varied by where the collaboration fell on the continuum. A complementary collaboration was more likely to require compatibility in work style, writing style, and priority; an integrative collaboration was more likely to require compatibility in management style, approach to science, and personality – and typically included friendship aspects (Hara et al., 2003). Within this study's cases, elements of work style, priority, approach, and friendship were found, though it is more difficult to classify the collaborations overall as more complementary or integrative.

Work style. For the scientists in Hara et al.'s (2003) study, work style was related to their approach to forming collaborations, in terms of taking initiative or being more passive. Within the liaison librarian-faculty collaborations these different work styles were also identified, though there was a balance in terms of who was more likely to take the initiative to collaborate. In some cases, it was the liaison who approached the faculty member, as seen with Rose and Christine. In other cases, it was the faculty member who approached the liaison, as seen with CoCo and Ursula. For some participants their initiative was shown in their other work, which led to them being approached for collaboration. One of the best examples of this was seen with Mike whose work style includes being involved in his liaison department's activities so that he can show interest in the faculty's research and be seen as available for collaboration. This initiative was observed by Paul and helped lead to their collaborative project.

Priority. The priority given to the collaboration for Hara et al.'s (2003) participants was a factor that could cause a collaboration to fail. The importance of

priority was identified during cross-case analysis as the sub-theme "investment." How invested or committed someone is in the collaboration was identified as important for selecting a collaborator or for being able to successfully complete the project. For some, this investment was mutual – as Christine noted about her project with Rose when she shared: "…we're together working on this project that we're both equally invested in." And CoCo showed a preference for working with collaborators who would be able to match her level of commitment to their collaboration.

Approach to work. While Hara et al.'s (2003) study talked about approach to work within the context of how participants approached science, the idea of having a similar approach to work applied to the liaison librarian-faculty research collaboration as well. For this study's pairs this similar approach to work was most often seen in a similar approach to teaching and similar focus on the importance of students. Beth articulated this when she described her collaboration with Margo as "Just two people who have the same passion in terms of teaching and learning, helping the students." And Paul highlighted this when describing his and Mike's shared interest "in innovation, entrepreneurship, and…how do you help students with that."

Friendship. Hara et al. (2003) found that friendship was often key for the creation of an integrative collaboration. The importance of friendship was identified as a salient sub-theme during the cross-case analysis for this study. The distinction between the scientists Hara et al. studied and the liaison-faculty pairs in this study is that the scientists seemed to develop friendships that would lead to successful collaborations, while most of the pairs in this study, with the exception of Jane and Chdine, had friendships develop because of their collaborations. Beth expressed this as knowing that she and Margo

"would become friends," and Christine put Rose "in my category of friends now" due to their collaborative work.

Work connections. In terms of work connections, Hara et al. (2003) noted that their scientists looked for others who shared their interests, had complementary expertise, shared their perspectives, and was someone they could learn from. The liaison-faculty pairs in this study looked for the same things. The importance of having complementary areas of expertise was addressed earlier. Having a shared interest in their project was also found throughout the cases, with most respondents noting that a shared interest drew them together. Paul called this common interest an "entry" into the collaboration. For a couple of participants this interest was not initially there, but developed as they worked on their project. Díaz and Mandernach (2017) found a similar theme of "equal interest" in their small case study at The Ohio State University. And Bedi and Walde (2017) found that the liaisons in their study tended to be "driven by the same questions as faculty researchers and had their own vested research interests within the same discipline as the faculty researcher" (p. 321).

In terms of having a shared perspective, the scientists in Hara et al.'s (2003) study actually referred to it as approaching a shared interest "from different perspectives" (p. 961). This was the context found in some of this study's cases. Christine talked about the importance of being able to both give her perspective and benefit from the perspective of others. Dolores had a similar sentiment and felt that the ideal collaborator "would bring a different perspective." And Amanita shared the idea that communicating within her collaboration led to both her and Mark changing their perspective on an aspect of their project.

Amanita's mention of changing perspectives links to the idea of learning in the collaboration, another work connection identified by Hara et al. (2003). While not salient enough to emerge as a sub-theme in the cross-case analysis, a number of participants indicated the importance of being able to learn from their collaborator. Dolores shared how her collaborator Suzanne often mentioned how much she learned about the library by working with Dolores. And both Suzanne and Christine talked about the ability to learn within co-teaching situations.

Incentives. Hara et al. (2003) found that the scientists in their study were motivated to collaborate by both external and internal incentives. External incentives consisted of prestige, funding, and publications while internal incentives were personal motivations held by individuals (solving an interesting research problem or being personally compatible). For this study's liaison-faculty pairs, funding was not an incentive to collaborate, but publication, prestige, and personal motivations were.

Prestige. As Hara et al. (2003) stated, "Some subfields or methodological approaches have higher status than others" (p. 962). This view is expressed even within the successful collaborations in this study, as some respondents noted that publishing in certain journals or on certain topics was a less prestigious options for them. This was the case for Paul who acknowledged that it was risky for him to publish his first article with Mark in a library journal since the journal was not on his department's list of quality publications. And Dolores shared how Suzanne explained that a Chemistry faculty member Dolores was working with wasn't interested in parts of their collaborative project because "writing an article about chemistry education in the STEM field does not carry a lot of prestige or weight."

Hara et al. (2003) identify publication as an incentive most often found in complementary collaborations. Within this study's cases, publication was an initial incentive for collaboration for only two cases. Paul and Mike collaborated with the intent of producing an article and Chdine and Jane collaborated with the intention of producing a book. For four of the other pairs, publication was something that developed out of their collaborations. One interesting addendum to this idea of incentives was evident in a comment by Paul, where he wondered about his motivation to collaborate and publish after earning tenure: "…we've talked about the rewards structures not necessarily behind me to…motivate that kind of behavior. There's probably something unique in our relationship." Hara et al. (2013) would suggest that in absence of external incentives, Paul's incentive to collaborate may be more internal or personal in nature.

Internal incentives were more prevalent in this study's liaison librarian-faculty collaborations. One type of internal incentive noted by Hara et al. (2003) was the desire to solve a problem that collaborators found interesting. This incentive was seen in Ursula and CoCo's relationship, as Ursula felt they shared "a kind of natural curiosity" and Ursula likes "to problem solve collaboratively." CoCo confirmed this shared trait and described collaboration as "[having] a shared…desire to explore something more fully." Another internal incentive suggested by Hara et al. (2003) and found within a number of cases was compatibility and simply enjoying working with the other person. Beth described this internal incentive in her collaboration with Margo, as they chose to work together not because of tenure or promotion requirements but "just because it's fun, and we like it."

Infrastructure. The infrastructure that Hara et al. (2003) referred to is essentially a siloed organization where communication and awareness are needed to encourage collaboration, which can be "facilitated by geographic proximity" (p. 963). This is also seen in the business world, as Hansen (2009) reported that the more distance between companies, the less communication and collaboration between internal business units. This aligns with the importance of being visible, seen within this study's collaborative relationships. Part of this visibility related to proximity and the impact of not seeing a potential collaborator. This was most noticeable in Jane and Chdine's case, where they had previously been co-located but were now in separate campus building. Both felt this separation impeded the possibility of future collaborations between liaisons and faculty, while Jane had increased collaborations with those in the library due to their increased proximity.

Summary. The research collaborations between the liaison librarians and faculty members in this study aligned well with the framework developed by Hara et al. (2003). Despite the framework being developed based on the experiences of a group of scientists in a research setting, there were parallels in the experiences of this study's liaison-faculty pairs. There appear to be common factors that may influence and impact the success of all research collaborations, regardless of setting or discipline. This, in turn, suggests that research collaborations between liaison librarians and faculty are no different than any other type of research collaboration and could be more commonplace with a better understanding of the factors outlined in the Hara et al. framework.

Social capital framework. Schlak (2016) used the concept of social capital to explore the "sometimes invisible nature" (p. 412) of liaison librarian-faculty

relationships. As one of the only attempts to apply a theoretical framework to understanding these relationships, Schlak's findings were applied to the relationships of this study's seven liaison librarian-faculty pairs. Definitions of social capital are wide and varied depending on the context in which it is being considered (Nahapiet & Ghoshal, 1998). Schlak relied on the definition developed by Nahapiet and Ghoshal that looked at social capital through structural, relational, and cognitive dimensions. His interviews with seven liaison librarians found themes around shared commitment, interrelational dynamics, and network positionality. While Schlak only interviewed liaisons and their relationships with faculty were instructional in nature, there were parallels to the relationships explored in this current study.

Shared commitment. Schlak (2016) found that a shared commitment to students both motivated liaison's work with faculty and facilitated relationship building. This shared commitment or interest in students was articulated by both faculty and liaisons in this current study. Beth pointed out the importance of her and her liaison Margo having the "same passion in terms of teaching and learning, helping the students." Rose emphasized that her job and teaching information literacy was about helping students and collaborating with faculty allowed her to do that. And Ursula noted the secondary role she had as a liaison in instructing students, and the dependence of her learning outcomes on those of the faculty member. From a social capital standpoint, faculty have the access to students that liaisons want. Collaborating with faculty offers liaisons a way to gain access to students within the confines of the instructor's space, thus garnering some of the social capital inherent to teaching faculty.

Interrelational dynamics. Schlak's (2016) discussion of the interrelational dynamics of liaison-faculty relationships focused on communication, advocacy, reciprocity, trust, and personal dimensions. Schlak suggested that social capital is shared between faculty and liaisons in three ways: through their communications, when faculty understand the liaison's goals, and when both are committed to the relationship. Relationships defined by these dynamics had mutual respect and a past relationship that led to "a smooth working relationship and future collaborations" (Schlak, 2016, p. 419). Schlak also identified trust and trustworthiness as critical for liaisons' ability to develop faculty relationships. Nearly all of these dynamics existed in the relationships explored in this study, particularly commitment, trust, advocacy, and prior relationships.

Commitment. Liaison's in Schlak's (2016) study talked about commitment in terms of their support of their liaison areas or generally developing relationships with faculty. As the focus of this current study was on research collaborations, discussions of commitment concentrated on specific projects and completing the work. Mike, a liaison, referred to this as being "committed…to moving whatever we're working on forward." And Christine, a faculty member, mentioned the importance of being "equally invested" in her project with Rose. Schlak also suggested that commitment was related to trust, something Mike mentioned when talking about how he and Paul "trust each other to follow through," which in turn led to their commitment to their work.

Trust. Beyond Mike's statement, trust is discussed throughout this study's seven cases. Similar to Schlak's (2016) findings where liaisons equated trust with competence, liaisons in the current study described the trust their faculty collaborator had in their ability to do the work. Margo articulated this in terms of Beth trusting her to work with

her students in the classroom, and Jane expressed how Chdine trusted her to edit his writing. Schlak's liaisons also talked about mutual trust, something Ursula noted in her relationship with CoCo. One aspect of trust not directly addressed by Schlak is the trust liaisons and faculty felt in being open with one another. This type of trust, as described by CoCo, lent a sense of safety to the relationship where they "can confide in each other" and where CoCo felt Ursula could ask for suggestions in dealing with "confidential or bias situations" in her work.

Advocacy. Schlak (2016) addressed advocacy from both the liaison and the faculty member in the relationship, though the argument could be made that the liaisons' advocacy leads to the faculty member's advocacy. For the liaisons in Schlak's study, advocacy was seen in their own actions to advocate for the importance of information literacy, and faculty advocating for the liaison or the library. While both of these expressions of advocacy were found in some of the cases, the role of faculty as advocate for liaison or library was more prominent. Paul's advocacy for his liaison Mike was seen in his deliberate efforts to "put him first" on publications and grant applications. Faculty as advocate for the liaison and the library was seen in Christine and Rose's case, where both talked about Christine taking on the role of advocate for Rose within the library and advocating for the library on campus. As Christine shared, "[I] feel like I can leverage my position…to be an advocate."

Past relationship. The final connection between Schlak's (2016) findings and this current study is the role of having a past relationship. As liaisons in Schlak's study pointed out, having a past connection or relationship with a faculty member often encouraged further collaborations not only with that individual faculty member but with

others. The prior classroom relationships built by Schlak's (2016) liaisons was the prelude for five of this study's cases. Both faculty and liaisons acknowledged that knowing the liaison through classroom collaborations fostered the development of research collaborations. For most, this tied back to not only knowing the person, but knowing their work style and work ethic. Liaisons also noted how their successful collaborations with faculty led other faculty to approach them for collaborative projects either based on seeing the liaison in action or by recommendation by another faculty member.

Network positionality. While Schlak (2016) discussed network positionality in terms of status and balance within relationships and within the context of the organization, he acknowledged that this was not the focus of his study and is an area that needs additional research. The cases in this current study allowed for this additional discussion of network positionality within liaison-faculty relationships. Both status and equality in the relationship were prominent in all of this study's cases. Expressions of social capital in terms of status were most salient in two cases – Mark and Paul, and Rose and Christine. In both of these cases, the faculty member's higher status in the institution's hierarchy impacted the liaison-faculty relationship, as both faculty members worked to share their social capital (their network positionality) to support their collaborative project and the overall work of the liaison.

In terms of equality or balance in the relationship, Schlak (2016) found that the work tended to be higher on the side of the liaison, but this was not necessarily an imbalance. Liaisons in his study attributed this to the service-oriented focus of their work and their efforts to build relationships with faculty. Overall, most felt the work was

balanced and even when it did seem imbalanced, this was seen as the nature of the relationships. This aligns with the views of liaisons in the current study, with the added benefit of corroboration from faculty. One liaison, Ursula, even addressed this imbalance from the same perspective as Schlak's liaisons, attributing the sense of imbalance to "the nature of the partnership…when you're a liaison from the library to another area, you really are in a…support role." Overall, the current study's participants all expressed feeling their relationships were balanced and equal on a number of levels.

Study Implications

This study's findings have implications for the work of liaison librarians and specifically how they approach the development of faculty relationships and research collaboration. While the goal of this study was to determine what factors led to successful research collaborations, an unexpected outcome was the identification of factors that could serve as barriers to these collaborations. This section presents these factors and provides suggestions for how liaison librarians, academic libraries, and higher education institutions can best address them.

Liaison workload. The literature indicated that librarians in general have seen increased workloads, most recently attributed to economic downturns and budget cuts that have led to hiring freezes, unfilled positions, and consolidation of work (Budd, 2012). For liaison librarians, this increased workload is also attributed to the addition of new services and responsibilities (Tennant et al., 2006). Church-Duran (2017) in her article about the emerging roles of liaison librarians, discussed the "boundless expectations" (p. 265) of the work that liaison librarians are expected to perform to keep up with new roles they are asked to take on in areas related to scholarly communication

and research data management. Even before conducting interviews with liaison librarians, the quantitative data analysis suggested that most liaisons were carrying a heavy workload. Nearly half of the survey respondents (49.9%) indicated performing all four types of work and 35.6% indicated performing three out of the four types of work.

The qualitative interviews confirmed that liaisons were carrying heavy workloads, attributed both to unfilled positions and increased services. Both Mike and Ursula talked about the increase in their work due to the addition of new responsibilities. For Mike this was tied to post-tenure responsibilities. For Ursula, it was participation in a college-wide initiative. And Margo, Dolores, and Jane all talked about picking up additional liaison areas due to recent retirements and the likelihood that those positions would not be filled. Considering lack of time due to workload was identified as a research engagement barrier (Clewis, 1991; Fox, 2007; Hersberger, 1989; Lessick et al., 2016) and the need to balance workload once engaged in a research collaboration was identified as a challenge for librarians (Bedi & Walde, 2017), the impact of liaisons' workload should not be ignored. Both issues were found within three of this study's cases and liaisons clearly recognized the increase in their workload. But more important was the fact that the liaisons' faculty members were also highly aware of these heavy workloads.

The refrain of he or she "is busy" was repeated multiple times and in multiple ways by faculty in this study, and supports Fox's (2007) study that showed more than one-third of full-time librarians surveyed were working 50 or more hours a week, not including scholarship. The impact of this impression, whether accurate or not, led one faculty member to avoid asking their liaison for assistance and another faculty member to hesitate to invite their liaison to collaborate on a research project. Other faculty lamented

not being able to work on a project due to the unavailability of the liaison. And one faculty member was concerned that other faculty's projects would fall through the cracks because of the liaison's unavailability. Considering the importance placed on availability as a preferred trait for collaborators, this perception is problematic for liaisons' efforts to collaborate with faculty.

While liaisons' heavy workloads are a reality, it is important that they are given the opportunity to balance their own work so that they do not lose opportunities for research collaborations with faculty. With this in mind, it is imperative that liaisons make faculty aware of their availability. As one liaison suggested when informed of her faculty collaborator's concern about her availability, "… what it makes me realize is that it might be wise for me to find ways to reassure her and myself that…I will let her know if I have any concerns about…any volume that might be created by the type of work we're doing." Making this part of the message that liaisons share with faculty could help to alleviate faculty concerns and eliminate the possibility of liaisons being overlooked for collaborations.

Liaison status. Collaboration research, both within and outside of LIS, reiterates the importance of all parties in the collaboration being seen as equals and respecting the contributions of the other (Creaser & Spezi, 2014; Donham & Green, 2004). Hansen (2009) referred to this as "status gap" and noted that "If individuals think that they have higher status than others, they will not reach out to collaborate with those 'less worthy' human beings" (p. 52). Historically faculty have not viewed librarians as their academic equals for various reasons (Cook, 1981; Hardesty, 1995; Haynes, 1996; Ivey, 1994; Oberg et al., 1989) and in some disciplines faculty have treated librarians as underlings

rather than colleagues (Attanasio, 1989). While the seven cases in this study feature successful research collaborations, the possible negative impact of differences in status were not ignored. One liaison noted that most of the faculty in her departments would not even consider approaching her to collaborate on the type of work she completed with her faculty collaborator. And another liaison shared the faculty resistance she often faces for even basic requests to work together, let alone research collaborations.

The problem that status differences bring to the development of liaison-faculty research collaborations is known (Creaser & Spezi, 2014). Even faculty see the challenge that librarians face when claiming faculty status (Jenkins, 2015). But the issue of librarian status is long-standing and goes beyond the library and into the hierarchical structures of academia itself. Despite LIS organizations, like the Association of College and Research Libraries (ACRL), supporting the importance of faculty standing for librarians, this view is not universally held, and changing librarians' status is not as simple as deciding it should be changed. Institutional barriers, including institutional history and funding, often impede the discussion. And even when librarians have faculty status there is no guarantee that research faculty will view them as equals (Given & Julien, 2005). Changing librarians', and thus liaisons' statuses in higher education may not be possible in terms of official status, but efforts to change how their status is viewed may be possible through advocacy.

Creating library advocates. Liaison relationships with faculty are often seen as a way to develop advocates for the library (Anthony, 2010; Thull & Hansen, 2009). Two cases in this study were emblematic of this advocacy, as Paul advocated for Mike to be seen as equal in their work, and Christine advocated not only for Rose's work but also the

work of the library. What these two cases showed is that educating faculty to the plight of librarians in higher education can lead to positive changes in how librarians are viewed. While Paul and Christine take it upon themselves to advocate for librarians, there is a role for librarians to purposefully work to create faculty advocates.

Waiting on faculty to realize the importance of the work done by liaisons and then hoping that they will then support the role of the liaison and the library leaves too many things to chance. As part of building relationships with faculty, liaisons should inform them of the issues and the barriers liaisons face in their work (especially as these issues impact faculty as well). Liaisons can encourage faculty to serve as advocates in the following ways:

- Recommend the liaison to other faculty;
- Consider what role the liaison and library can play in other aspects of their work;
- Participate in library activities; and
- Speak for the library at campus meetings where the library may not be represented.

Being proactive in the development of faculty advocates would allow liaisons to work purposefully towards overcoming the status barriers that limit their role in research collaborations.

Awareness/Visibility. Out of sight, out of mind appears to be a reality for liaison librarians. Despite efforts to connect with faculty, most survey respondents reported having limited contact with some faculty in their liaison areas. This indicates that liaisons' efforts to connect with faculty may require more than the occasional e-mail. Moniz et al. (2014) suggested that liaisons take the initiative when trying to build

relationships with faculty by making first contact, finding out what faculty are interested in, communicating consistently and personally, and letting faculty know the full range of ways the liaison can assist. These suggestions were supported by this study's interviews, which showed the impact of visibility on the development of successful liaison-faculty research collaborations.

Being seen. Visibility is important to liaisons' ability to develop collaborations with faculty. This visibility can take different forms, but both the literature (Anthony, 2010; Creaser & Spezi, 2014; Glynn & Wu, 2003; MacDonald & vanDuinkerken, 2015; Moniz et al., 2014; Morgan, 1996) and the liaisons interviewed in this study suggest that liaisons attend departmental events and activities. Margo, Dolores, and Mike all talked about finding collaborative opportunities with faculty by being at campus events and in faculty spaces, including areas like the faculty dining hall. Anthony (2010) described this as showing faculty that the liaison was interested in them and their research, a method that Mike utilized in his efforts to reach faculty.

Physical proximity. Beyond being seen at departmental events, the literature also suggests liaisons spend extensive amounts of time in the actual departments they support (Creaser & Spezi, 2014; Thull & Hansen, 2009) including as embedded librarians. Most experiences with embedding indicate that the daily contact can lead to increased interactions and opportunities for collaboration with faculty (Ariew, 2000; Blake et al., 2016; O'Toole et al., 2016). One faculty member interviewed used this reasoning to suggest that her liaison should become embedded in her department. Another faculty member whose liaison used to be located in his department before moving to the library lamented the lost contact and felt that no longer seeing her on a daily basis negatively

impacted their relationship. His liaison agreed that not seeing the faculty in her liaison areas has reduced collaboration opportunities.

Unfortunately, embedding is not a possibility for most liaisons who support multiple departments, often in different areas, or have other job responsibilities. This was the case for Ursula, who agreed with the possible benefits of embedding in her faculty collaborator's department, but did not see it as feasible. Even if embedding in a department is not possible, pursuing opportunities to exist in faculty spaces will help liaisons avoid being forgotten simply because they are not seen. Liaisons cannot depend on faculty to come to the library, an activity that has not been common for most faculty since technology and other services made it seem unnecessary (Poll & Payne, 2006). Liaisons will need to leave the library and be seen as active members of the campus community, in order to give themselves more opportunities to engage with faculty.

Awareness. Outside of physically being seen by faculty, visibility is also about awareness. Liaison efforts to make faculty aware of their services, skills, and abilities impact opportunities for collaboration. Despite using multiple methods to inform faculty of the services and support they offer, many faculty are unaware of liaisons' availability (Haines et al., 2010; Kramer et al., 2011) or the extent of what liaisons can do to support their research (Epstein & Rosasco, 2015; Kramer et al., 2011; Lorenzetti & Rutherford, 2012; Stahl, 1997; Vaughan et al., 2013; Wijayasundara, 2008). Even within this study's successful relationships, evidence of faculty's limited view of how liaisons could support their research was found. The most notable instance of this was seen with Rose and Christine. Though Christine had seen Rose's research capabilities within their collaborative project, and even praised the quality of their collaborative publication due

to those research skills, she did not initially consider Rose as someone who could help her with her individual research project. Her reasoning for this was not negative, as she viewed Rose as her collaborator and not necessarily someone who would support her. But this view also limited the liaison's role in supporting faculty research. While collaboration is the ultimate goal, liaisons are prepared and equipped to offer other forms of research support as well.

*A liaison menu***.** Christine and Rose's case shows faculty's lack of awareness of their liaison's research capabilities, even within an established relationship. This suggests a need for liaisons to be proactive and specific about the ways they are available to work with faculty on their research needs. This suggestion is not new, as Holbrook (1984) suggested liaisons should "from time to time to show how one's activities can directly assist their [faculty's] teaching or research" (p. 273); and Falciani-White (2016) more recently argued for libraries to be "more outspoken" about their ability to "support all aspects of research" (p. 124). One recommendation is for liaisons to offer faculty a menu of services that clearly articulates what they will and will not do. This would help to eliminate confusion when faculty request services that liaisons may not be comfortable with offering – for example, some liaisons are not comfortable conducting literature reviews for faculty (Brydges & Clark, 2015) - and also make it easier for faculty to know what services are available to them. While many liaisons will argue that they already do this in the multiple e-mail messages they send out to faculty, most of these messages are very broad in nature and do not articulate in detail the full-range of services offered.

Creating a menu would allow liaisons to not only list the services they offer but also showcase the skills they bring to a research collaboration. In addition to their

research skills and knowledge, liaisons could highlight their experience with grants, research data management, open access, copyright, and citation management just to name a few of the specialty areas they are qualified to assist with. A descriptive menu would also eliminate confusion about liaisons' capabilities and help faculty to view the liaisons' role outside of a classroom setting. Rather than bemoaning the limited role they often have when working with faculty, liaisons can be proactive about defining their role for themselves.

Being known/prior relationships. One final aspect of liaison visibility/awareness is the importance of liaisons building on previous relationships with faculty to create research collaborations. As seen in six out of the seven cases in this study, the liaison had already established a relationship with the faculty member either in the classroom or through collection development support. These liaisons were able to build on these relationships or watched them evolve into research collaborations. This phenomenon is often mentioned in the literature as a bonus benefit of successful collaborative projects between liaisons and faculty (Blake et al., 2014; Bruce, 2001; Reynolds, Smith, & D'Silva, 2013). Liaisons should take advantage of the faculty preference for working with a known commodity and make themselves and their work known to the faculty member prior to approaching them to begin a relationship.

Trustworthiness of Findings

The application of mixed methods in this study supports the overall credibility of the study. The addition of a qualitative strand was particularly important due to the exploratory nature of the quantitative strand. The collection of qualitative data and additional documents allowed for the development of detailed case studies that offered a

more in-depth view of the liaison-faculty collaborative research relationship. A comparison of the collected data and findings from both strands allowed for the development of meta-inferences. As described by Creswell and Plano Clark (2011), these meta-inferences represent the interpretations developed by reviewing the findings from the study strands individually as well as across the strands.

Validity of results was considered for both study strands during study design, data collection, and data interpretation. For the quantitative strand, both internal and external validity were considered. Due to the associational and exploratory nature of the quantitative strand, internal validity was not a concern. Determining causality from the quantitative data was neither an intention of the study nor possible due to structure of the data collection. Additionally, despite the large number of survey respondents, generalization of the quantitative findings was not possible as the participants were not randomly selected for inclusion in the study. Participants chose to participate in the study and while they may resemble most academic liaison librarians, it cannot be assumed that they are representative of all liaison librarians.

Multiple methods to strengthen validity of the qualitative data were undertaken including triangulation, member checking, and clarifying researcher bias (Creswell, 2013). Triangulation of data collected during both the quantitative and qualitative strands allowed for verification of some quantitative findings and confirmation of information shared by interview participants. Member checking was used at two points in the study as interview participants were invited to review and correct their interview transcripts and case study descriptions. Finally, efforts to clarify my own bias as a researcher were seen in my positionality statement and in disclosure of my prior liaison librarian status to study

participants during the interview process. In combination, these methods support the quality of the qualitative cases and lend support for the overall quality of the study.

Study Limitations

This current study has limitations that should be considered when gauging the final results. These limitations are detailed for both the quantitative and qualitative strands, as well as the interaction points.

Quantitative strand limitations. While the survey created for this study was reviewed, tested and piloted prior to use, some issues with its administration were identified. It is acknowledged that the survey was longer than recommended. Efforts were made to reduce the survey length during the design phase, but feedback from testers indicated the necessity of including most of the questions. While 2,650 viable surveys were collected, 207 surveys were removed due to having more than 60% missing data. Though respondents were informed of the survey's length before beginning the process, it is likely that many simply did not have the time to complete it. A few potential respondents replied to the survey invitation stating that they did not have the time to complete a 20-minute survey.

In addition to issues with survey length, choice of wording in the survey likely impacted participants' responses. The survey section where this was most likely seen was when respondents were asked to rate their confidence in their ability to support faculty research activities. Survey directions asked respondents to rate services even if they were not currently offered (i.e. *I don't currently do this, but if I were asked to do this I would rate my confidence-level as…*). However, comments submitted with some surveys indicated that a few respondents ranked some services based on whether they felt

they *should* offer the service (i.e. I could do this but I don't think it should be an option.) Since it was not possible to determine whether this impacted all of their rankings, the surveys were retained. However, the possibility that others also approached their ratings of this section with that mindset suggests possible issues with the validity of the data collected in that section.

The decision to not separate scholarly communication as an additional type of work is another possible limitation of this study. Through additional review of the literature and recent publications produced after completion of the survey, it became clear that many liaisons consider scholarly communication efforts to be outside of the four work types included in this study. While this study included aspects of scholarly communication in research support and outreach, the case can be made that scholarly communication activities should stand alone. This would have unfortunately also lengthened the study, but in hindsight it also would have allowed for more direct investigation into the place scholarly communication has in the work of liaisons.

Finally, quantitative data analysis found a large number of significant association, even with the use of an alternative *p*-value to control for Type I error inflation. The decision to use chi-square and Spearman's rho to analyze the data, though sound, does not offer the most powerful data analysis option. This limits the interpretation of these results, though it does offer empirical support for the importance of the factors explored. Additional statistical analysis of the existing data, including logistic regression, is suggested to better investigate the impact that organizational and individual factors have on the work and relationships of liaison librarians.

Qualitative strand limitations. The study's qualitative strand also had a limitation based on the selection of interview participants. As participation was voluntary, I was unable to strategically select the pairs to interview beyond those who made themselves available for inclusion. I was reliant on liaison librarians who first identified their interest in participating and then contacted their faculty member to solicit their participation. Because volunteers were either unable or unwilling to identify possible faculty participants from failed collaborative partnerships to participate in the study, only positive collaborations were investigated further. This limited the ability to fully investigate liaison librarian-faculty relationships from both ends of the spectrum, as failed collaborations may have revealed additional relationship dynamics not found in successful collaborations.

At this point some effort to categorize pairs based on institution type, regional location, and type of research collaboration was attempted. However, due to limited funding, only ten pairs could be selected for interviews and only those where both members of the pair were available for an interview within a three-month period were considered. This limitation meant that some institutional types which may have presented different experiences were not included in the qualitative strand of the study. For example, quantitative analysis indicated that liaisons working at Special Focus: Four-Year Institutions were more confident in their ability to support faculty quantitative research activities. However, not having any liaisons who worked at one of these institutions in the qualitative strand meant that I was unable to follow up on this finding to determine what factors might influence this difference. During the interviews three of

the pairs were found to not have a research collaboration, meaning their data was removed from the study.

Points of interaction limitations. As a mixed-methods study, there were some limitations related to the interaction of the study strands. The biggest limitation was due to the decision to collect the survey data anonymously. While this likely increased the number of participants, it did not allow for direct comparison of data from the liaisons who participated in the qualitative interviews. This means that direct questions about their responses, how those responses fit within the quantitative data analysis results, and how those responses manifest within their actual work were not possible. This limited connections from the interviews to the overall quantitative findings, some of which did not align with the experiences of those who were interviewed.

Additionally, the sheer number of significant quantitative findings made it impossible to ask interview participants the questions that would have been needed to address all of the findings. In an effort to address as many of the findings as possible while remaining focused on the intent of the interviews and the study, some changes were made to interview questions. However, it became clear during qualitative data analysis that most of the quantitative results were not be directly addressed by the participants, thus limiting the value of the sequential explanatory mixed-methods design. Using a different participant selection process, while not feasible for this study, may have offered a better opportunity to integrate the results of both strands of the study.

Suggestions for Future Research

The exploratory nature of the study's quantitative strand, and the insight gained from the qualitative strand both offer suggestions for future research into the work of liaison librarians and their collaborative research relationships with faculty.

Liaison work. This study revealed that liaison work is complicated by numerous external and internal factors. While multiple significant associations were found between the type of work liaisons engaged in and organizational and individual factors, additional study of these factors is needed to better understand the nature of the role they play in determining liaisons' work. One possible suggestion is the use of logistic regression to move from associating factors with liaison work to using those factors to predict the type of work liaisons perform. Additionally, with the identification of factors that appear to play a significant role in liaison work, studies that focus on individual factors can be undertaken.

The impact of liaisons' workload, both on how they perform their work and on their ability to develop faculty relationships requires further investigation. Case in point, as data was being analyzed for this study, a liaison's post on Facebook asked others how many faculty they were asked to support. As this question was asked in this study and associated with some aspects of faculty relationship-building, I was also interested in the responses and thought I could add to the conversation. However, what I found was that the question was less about how many faculty were being supported and more about the emotional and physical impact of supporting a large number of faculty. In combination with the findings from this study, this experience indicates the need to explore factors

like number of faculty supported from the context of concepts like job satisfaction, burnout, and morale.

Liaison-faculty relationships. Even as this study adds to the literature on liaison-faculty relationships, it also identified the need for additional research. Many of the relationships explored still had a basis in the classroom, and while this factor is important to recognize, it does not help with understanding the new relationships that are developing through non-traditional liaison roles. As seen in Amanita and Mark's case, liaisons are supporting campus initiatives, creating a new dynamic within the liaison-faculty relationship. What is the impact of being a liaison for the campus and not just a specific department or area? How does this impact the role of the factors explored in this study, such as education and institutional status? As Amanita and Mark's case showed, there are differences in their relationship not seen in relationships between traditional liaisons and faculty. Further research into these differences will allow for better understanding of how the shifting liaison role impacts faculty relationship-building, especially given the connection of these roles to faculty and institutional research.

Overall suggestion. One final suggestion involves the continued use of both quantitative and mixed methods to explore this study's topics. The results of this study offer support for the need to study LIS topics more empirically. Given that the literature is full of anecdotal and individual opinions about liaisons, their work, and their faculty relationships, more studies that look at this topic through sound research methodology are needed. These studies will allow for better understanding of liaison work, but also offer data driven evidence to support future approaches to that work. Anecdotally suggesting that liaisons' workload impedes their ability to perform has less impact than data driven

evidence demonstrating the impact of this workload. With evidence, liaisons will be able to approach their administration to discuss workload concerns and possible solutions.

Conclusion

Academic libraries have the potential to play a vital role in supporting the research mission of higher education institutions. The academic liaison librarian has been positioned to take the lead in providing this support through the development of collaborative research relationships with faculty. However, the liaison-faculty collaborative research relationship has proven to be elusive for many liaisons. Both internal and external factors create barriers that impede the work of liaison librarians and their ability to development collaborative research relationships with faculty.

This study contributes to research on liaison librarians and academic libraries in four ways: 1) exploring the wide range of work that liaison librarians perform, 2) investigating liaisons' perceptions of the relationships they develop with faculty and their confidence in supporting faculty research, 3) developing an understanding of the liaison-faculty research collaborative relationship from the perspective of both the liaison and faculty member involved, and 4) applying mixed methods research methodology to understanding the liaison-faculty collaborative research relationship. The study's findings provide quantitative and qualitative evidence for the anecdotally posited barriers to liaisons' ability to form collaborative research relationships, including liaison workload, differences in status between librarians and faculty, and lack of confidence on the part of liaisons to support faculty research. But the findings also suggest the benefits of liaisons being proactive and visible in their efforts to develop faculty relationships. The knowledge of these barriers and benefits provides liaisons with guidance for

approaching the development of faculty relationships from an empirical standpoint, utilizing avenues that have proven successful for other liaisons.

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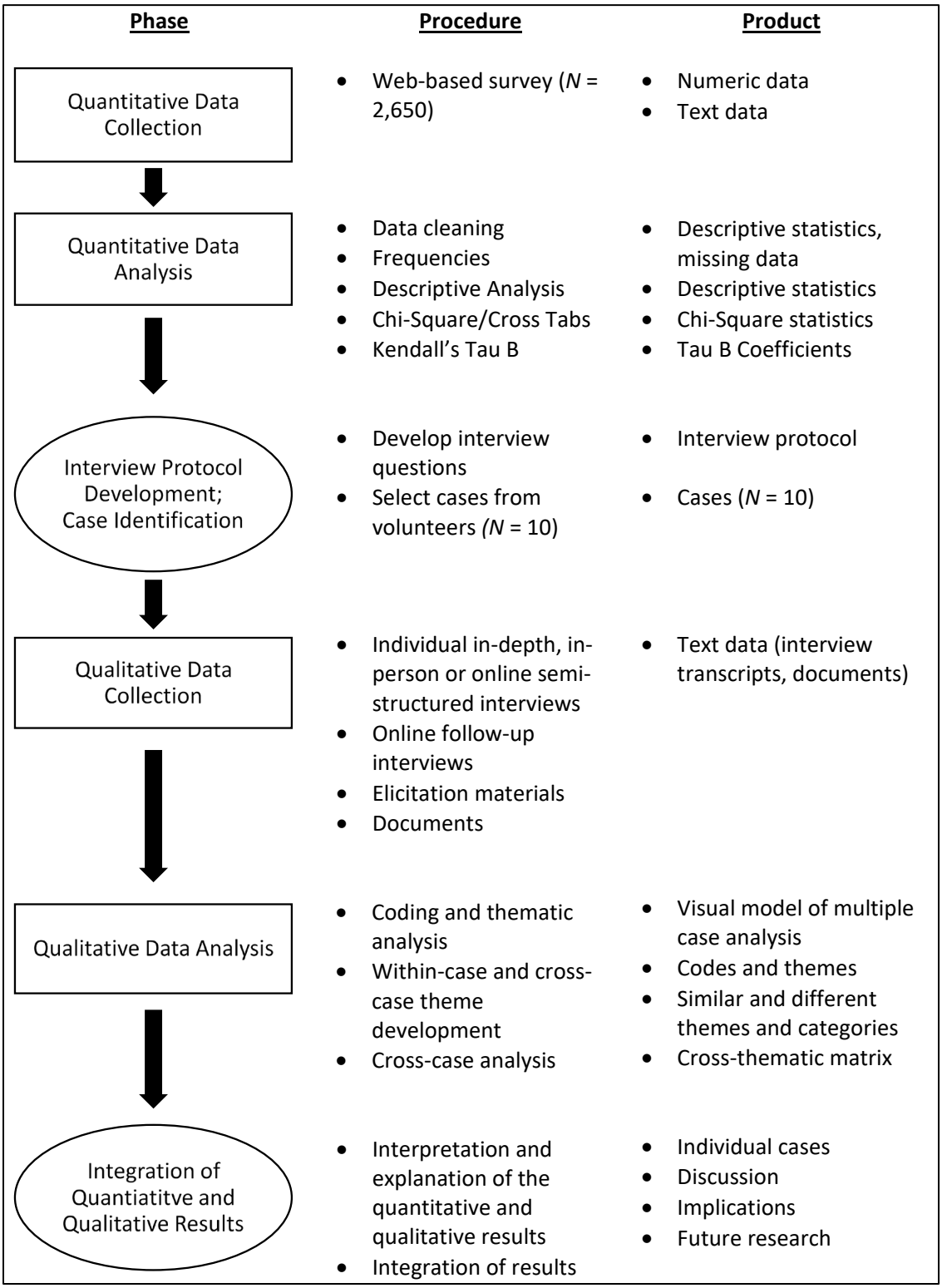
APPENDIX A.

MIXED-METHODS STUDY DESIGN DIAGRAM



APPENDIX B.

SURVEY INSTRUMENT

Investigating the work of academic liaison librarians and the liaison-faculty relationship.

This survey aims to collect data about the work of liaison librarians, with a specific focus on the relationships that liaisons form with faculty members. For the purpose of this survey, the term ***liaison librarian*** is being used to describe any librarian who is assigned to work with programs or departments outside of the library. The role of liaisons varies, though the general goal is for the liaison to serve as a connector between the library and these external departments. Liaison librarians may have different names, including subject librarians, subject specialists, embedded librarians, informationists, or departmental contacts. Regardless of name or title, these librarians tend to serve as specialists or experts in the subjects of the departments they represent.

Screening Question

0. Do you currently work in a position in an academic library with liaison responsibilities to at least one academic college (e.g., College of Arts & Sciences, College of Business, etc.), department (e.g., Chemistry, English, Psychology, Engineering, etc.), program or unit (e.g., First Year Studies, Honors College, etc.); or non-academic program or group (e.g., Athletics, Greek Life, etc.).
   - ◌ Yes
   - ◌ No

   If Yes selected, go to question 1 of the survey.
   If No selected, skip to non-liaison end of survey message.

Section I. Demographics

This section asks basic demographic questions that will be used for classification

purposes only.

1. What is your age?
2. What is your gender identity?
   - ◌ Male
   - ◌ Female
   - ◌ Trans female/Trans woman
   - ◌ Trans male/Trans man
   - ◌ Non-binary/ Third gender

- ◌ Prefer to self-describe _____
- ◌ Prefer not to answer

3. What race(s) do you identity as? (Please check all that apply)

   - ☐ White
   - ☐ Black or African American
   - ☐ American Indian or Alaska Native
   - ☐ Asian
   - ☐ Native Hawaiian or Pacific Islander
   - ☐ Other _____
   - ☐ Prefer not to answer

4. Do you identify as Hispanic or Latino?

   - ◌ Yes
   - ◌ No

5. How long have you worked in a professional position as a librarian?

   - ◌ Less than one year
   - ◌ 1 – 5 years
   - ◌ 6 – 10 years
   - ◌ 11 – 15 years
   - ◌ 16 – 20 years
   - ◌ 21 - 25 years
   - ◌ 26 – 30 years
   - ◌ More than 30 years

6. What is the Carnegie basic classification of your institution? (Drop-Down List) Not sure? You can find your institution's classification here.
   - ◌ Doctoral Universities: Highest Research Activity
   - ◌ Doctoral Universities: Higher Research Activity
   - ◌ Doctoral Universities: Moderate Research Activity
   - ◌ Master's Colleges & Universities: Larger Programs
   - ◌ Master's Colleges & Universities: Medium Programs
   - ◌ Master's Colleges & Universities: Small Programs
   - ◌ Baccalaureate Colleges: Arts & Sciences Focus
   - ◌ Baccalaureate Colleges: Diverse Fields
   - ◌ Baccalaureate/Associate's Colleges: Mixed Baccalaureate/Associate's

- ◌ Baccalaureate/Associate's Colleges: Associate's Dominant
- ◌ Associate's Colleges: High Transfer-High Traditional
- ◌ Associate's Colleges: High Transfer-Mixed Traditional/Nontraditional
- ◌ Associate's Colleges: High Transfer-High Nontraditional
- ◌ Associate's Colleges: Mixed Transfer/Career & Technical-High Traditional
- ◌ Associate's Colleges: Mixed Transfer/Career & Technical-Mixed Traditional/Nontraditional
- ◌ Associate's Colleges: Mixed Transfer/Career & Technical-High Nontraditional
- ◌ Associate's Colleges: High Career & Technical-High Traditional
- ◌ Associate's Colleges: High Career & Technical-Mixed Traditional/Nontraditional
- ◌ Associate's Colleges: High Career & Technical-High Nontraditional
- ◌ Special Focus Two-Year: Health Professions
- ◌ Special Focus Two-Year: Technical Professions
- ◌ Special Focus Two-Year: Arts & Design
- ◌ Special Focus Two-Year: Other Fields
- ◌ Special Focus Four-Year: Faith-Related Institutions
- ◌ Special Focus Four-Year: Medical Schools & Centers
- ◌ Special Focus Four-Year: Other Health Professions Schools
- ◌ Special Focus Four-Year: Engineering Schools
- ◌ Special Focus Four-Year: Other Technology-Related Schools
- ◌ Special Focus Four-Year: Business & Management Schools
- ◌ Special Focus Four-Year: Arts, Music & Design Schools
- ◌ Special Focus Four-Year: Law Schools
- ◌ Special Focus Four-Year: Other Special Focus Institutions
- ◌ Tribal Colleges
- ◌ Non-Carnegie/Non-US Institution

7. In what library department is your current position based (e.g. Reference, Access Services, Collection Management, Administration)? If library has no departments, please indicate N/A.

8. How long have you been in your current position?
   - ◌ Less than one year
   - ◌ 1 – 5 years
   - ◌ 6 – 10 years
   - ◌ 11 – 15 years
   - ◌ 16 – 20 years
   - ◌ 21 - 25 years
   - ◌ 26 – 30 years

- ◌ More than 30 years

9. Has your current position always included liaison responsibilities?
   - ◌ Yes, specific liaison responsibilities were included in the job description.
   - ◌ Yes, though my liaison responsibilities were assigned after I was hired.
   - ◌ Yes, some liaison responsibilities were included in the job description **AND** some responsibilities were assigned after I was hired.
   - ◌ No, liaison responsibilities were added after I was hired.

10. How many different areas (academic or non-academic) do you currently support as a liaison? (please enter a number)

    Ex. *If you are the liaison to the entire College of Engineering, you would count that as one area. But if you are assigned specifically to the Chemical Engineering department and the Materials Engineering department, while someone else liaises with the Electrical Engineering department, you would count that as two areas. Please be sure to include any areas you may be covering only temporarily.*

11. What is your ***estimate*** of the total number of faculty in the liaison areas you support?
    - ◌ 1-10
    - ◌ 11-20
    - ◌ 21-30
    - ◌ 31-40
    - ◌ 41-50
    - ◌ More than 50
    - ◌ There are no faculty in the areas I support

12. What major discipline(s) is your liaison work located in? (Please check all that apply)
    - ☐ Arts & Humanities (e.g. Archaeology, History, Languages, Literature, Philosophy, Theater, etc.).
    - ☐ Social Sciences (e.g. Anthropology, Economics, Political Science, Psychology, Sociology, etc.)
    - ☐ Science, Technology, Engineering, and Mathematics (e.g. Astronomy, Chemistry, Geography, Statistics, Physics, etc.)
    - ☐ Professional Programs (e.g. Medicine/Health Sciences, Law, Education, etc.)
    - ☐ Other Academic Areas (Please specify)
    - ☐ Non-academic Areas (please specify)

13. What undergraduate degree(s) do you hold? (Please list all. Suggested format: BA Psychology; BS Biology)

14. Does your undergraduate degree relate to any of the liaison areas you support?
    - ◌ Yes
    - ◌ No

15. Do you have an MLS, MLIS, or equivalent library science degree?
    - ◌ Yes (If selected, skip to question 17)
    - ◌ No (If selected, answer question 16)

16. You indicated that you do not hold an MLS, MLIS, or equivalent. What post-graduate degree(s) do you hold? (Please list all. Suggested format: PhD Sociology; MEd Instructional Design)

17. Do you hold any additional advanced degrees or certificates outside of your MLS degree?
    - ◌ Yes (if selected, answer question 18)
    - ◌ Not yet, but currently in progress (if selected, skip to question 19)
    - ◌ No (if selected, skip to question 21)

18. You indicated that you hold an additional advanced degree or certificate outside of your MLS degree. When did you earn this degree? (If more than one degree, please select all that may apply)
    - ☐ Before I received my MLS
    - ☐ At the same time that I received my MLS (dual-degree)
    - ☐ After I received my MLS

19. You indicated that you have or are working towards an additional advanced degree outside of your MLS degree. Please list that degree here. If more than one, please list all (Suggested format: PhD Sociology; MEd Instructional Design)

20. Does your additional advanced degree (post-graduate) relate to any of the liaison areas you support?
    - ◌ Yes
    - ◌ No

21. What status do librarians have at your institution? (Select all that may apply)
    - ☐ Faculty Status, Tenure Track, Professor Ranks (e.g. Assistant, Associate, Full Professor)
    - ☐ Faculty Status, Tenure Track, Other Ranks (e.g. Associate Librarian; Librarian I)
    - ☐ Faculty Status, Non-Tenure Track, Professor Ranks
    - ☐ Faculty Status, Non-Tenure Track, Other Ranks

- ☐ Academic or Professional Status (Not Faculty, But Not Staff; Librarian status stands alone)
- ☐ Staff
- ☐ Other (please specify)

22. What status do **you** hold in your current position?
    - ◌ Faculty Status, Tenured, Professor Rank (e.g. Assistant, Associate, Full Professor)
    - ◌ Faculty Status, Tenured, Other Rank than Professor (e.g. Associate Librarian; Librarian I)
    - ◌ Faculty Status, On Tenure Track, Professor Rank
    - ◌ Faculty Status, On Tenure Track, Other Rank than Professor
    - ◌ Faculty Status, Non-Tenure Track, Professor Rank
    - ◌ Faculty Status, Non-Tenure Track, Other Rank than Professor
    - ◌ Academic or Professional Status
    - ◌ Staff
    - ◌ Other (please specify)

Section II. Liaison Librarian Activities

For questions in this section, please think about the activities that you perform that are specifically related to your responsibilities as a liaison librarian.

23. How much of your current position is devoted to your liaison responsibilities? (Please base this on how much you feel you devote to your liaison responsibilities, rather than what your position description may indicate)
    - ◌ 75% or more
    - ◌ 50-74%
    - ◌ 25-49%
    - ◌ Less than 25%

24. In your current position, which of the following methods do you use to communicate with faculty in your liaison areas?
    - ☐ Attend liaison area departmental meetings
    - ☐ Send direct emails to individual faculty
    - ☐ Send direct emails to faculty as a group
    - ☐ Send emails distributed through a department listserv
    - ☐ Send email distributed through a department chair

- ☐ Send email distributed through other department contact (e.g. administrative assistant, designated library contact)
- ☐ Drop by department(s) (unscheduled)
- ☐ Faculty drop by liaison's office (unscheduled)
- ☐ Drop by faculty member's office during faculty member's office hours
- ☐ Set up scheduled (one-on-one) meetings (in-person or online)
- ☐ Hold office hours in liaison areas' physical space
- ☐ Hold office hours for liaison areas in library
- ☐ Post social media messages on liaison areas' pages/sites (either directly or through a departmental contact)
- ☐ Include information in liaison area's departmental/program newsletter
- ☐ Call faculty on telephone
- ☐ Other (please specify)
- ☐ I do not communicate with faculty in my liaison areas

25. In any position you've held as a liaison, which methods have you used to stay up to date on the subjects within your liaison area(s)? (please select all that apply)
    - ☐ Attended professional conferences related to my liaison area(s)
    - ☐ Attended programs or meetings related to my liaison area(s) at professional library association conferences
    - ☐ Joined professional associations in my liaisons area(s)
    - ☐ Monitored liaison area listservs (i.e. professional association listservs)
    - ☐ Reviewed the professional literature in my liaison area(s)
    - ☐ Attended workshops/training sessions in my liaison area(s)
    - ☐ Audited courses within my liaison area(s)
    - ☐ Enrolled in courses within my liaison area(s)
    - ☐ Earned a professional certificate in my liaison area(s)
    - ☐ Earned a degree in my liaison area(s)
    - ☐ Conducted research independently within my liaison area(s)
    - ☐ Conducted research collaboratively within my liaison area(s)
    - ☐ Other (please specify):

26. In which of the following areas do you perform liaison activities? (select all that apply)

- ☐ Collection Development
- ☐ Instruction Services
- ☐ Research Support
- ☐ Outreach. *For the purpose of this survey, outreach is broadly defined as efforts undertaken to connect, interact, or engage with your specific liaison areas. This includes communicating with your liaison areas and engaging in activities that do not fit neatly into collection, instruction, or research support.*

27. (If Collection Development selected). Please indicate which of the following collection development activities you engage in with your liaison areas (please select all that apply):

- ☐ Select materials (books, journals, databases, etc.) for liaison areas based on librarian expertise (not in collaboration with liaison areas).
- ☐ Consult with faculty in liaison areas to select materials relevant to faculty research and teaching needs.
- ☐ Pilot databases and other electronic resources.
- ☐ Weed library collections in liaison areas based on librarian expertise (not in collaboration with liaison areas).
- ☐ Consult with faculty in liaison areas to weed library collections.
- ☐ Respond to faculty requests to purchase materials (unsolicited).
- ☐ Solicit faculty requests for materials to purchase.
- ☐ Ensure that publications by faculty in liaison areas are purchased for the library's collection.
- ☐ Other (please specify)

28. (If Instruction Services selected). Please indicate which of the following instruction service activities you engage in with your liaison areas:

- ☐ One-shot instruction sessions.
- ☐ Multiple-meeting instruction sessions (meet with same class more than once throughout semester/quarter).
- ☐ Include your contact information in course management system/syllabus, but no structured contact planned with course.
- ☐ Embedded into course, not course instructor (contact information included in course management system/syllabus and structured contact planned – including instruction sessions or consultations with students).

- ☐ Course Co-Instructor with faculty from liaison area(s) (with teaching/grading responsibilities).
- ☐ Course Co-Instructor with other librarians for liaison area(s) (with teaching/grading responsibilities).
- ☐ Solo Course instructor for liaison area(s).
- ☐ Collaborate on development of new courses.
- ☐ Collaborate on development of course assignments.
- ☐ Teach library-based workshops on research and information literacy topics related to liaison area(s).
- ☐ Provide copyright use information for course materials (book chapters, journal articles).
- ☐ Create course guides in liaison area(s).
- ☐ Create handouts for specific courses in liaison area(s)
- ☐ Create instructional tutorials for topics related to liaison area(s)
- ☐ One-on-one assignment consultations with students
- ☐ Other (please specify)

29. (If Research Support selected). Please indicate which of the following research support activities you engage in with faculty in your liaison areas. *Please select activities that you **personally** provide and not ones where you may refer faculty to other resources. While you may provide research support to students and staff in your liaison areas, for the purpose of this survey, please indicate your activities related only to support of faculty research.*

- ☐ One-on-one research consultations with faculty in liaison area(s).
- ☐ Assist faculty with understanding copyright for their publications.
- ☐ Provide faculty with information on open access publishing options.
- ☐ Help faculty add items to an institutional repository.
- ☐ Help faculty add items to a disciplinary repository (submissions not based on institutional affiliation)
- ☐ Help faculty to properly cite their sources.
- ☐ Help faculty to manage/organize their citations/sources.
- ☐ Provide faculty with citation analysis (impact) of their research publications.
- ☐ Provide faculty with journal impact information.
- ☐ Provide faculty with data management support.

- ☐ Identify potential grant opportunities for faculty research.
- ☐ Co-author research articles with faculty.
- ☐ Co-present research findings with faculty at professional events.
- ☐ Compile literature reviews for faculty research.
- ☐ Conduct systematic reviews for faculty research.
- ☐ Serve as member of a research team (not grant-related)
- ☐ Assist with development of grant proposals (pre-grant submission).
- ☐ Serve as a member of a grant team (post-grant submission)
- ☐ Review faculty publications prior to submission for publication
- ☐ Other (please specify)

30. (If Outreach selected). Please indicate which of the following outreach activities you engage in with your liaison area(s):
    - ☐ Share updates about the library (through e-mail, social media, print newsletters, etc.).
    - ☐ Attend liaison area departmental meetings.
    - ☐ Attend liaison area departmental sponsored events (lectures, orientations, social events, etc.)
    - ☐ Send lists of recent publications added to the library collection in liaison area(s)
    - ☐ Meet with candidates for faculty positions in liaison area(s)
    - ☐ Serve on liaison area search committees.
    - ☐ Offer library orientations for new faculty in liaison areas (non-instruction sessions).
    - ☐ Offer library orientations for new staff in liaison areas (non-instruction sessions).
    - ☐ Offer library orientations for new students in liaison areas (non-instruction sessions).
    - ☐ Participate in liaison area's program accreditation review processes.
    - ☐ Host informal get-togethers with refreshments for liaison area(s)
    - ☐ Other (please specify)

Section III. Liaison Perceptions of Liaison-Faculty Relationship

The following section asks you to rate your level of agreement with statements related to your perception of the relationships you have built with the faculty in your assigned liaison areas.

As most liaisons are assigned to more than one area, for this section please select **one** liaison area and base your responses on that area. Please indicate the liaison area you've selected here:

Each item can be rated on the following scale from 1 to 5:

1: Strongly disagree
2: Somewhat Disagree
3: Neither agree nor disagree
4: Somewhat Agree
5: Strongly agree

There are no right or wrong answers – please select the rating that reflects how much you personally agree with the statement.

31. It has been difficult to build relationships with some faculty in my liaison area
32. Some faculty in my liaison area seek me out to build relationships.
33. I spend a lot of time building relationships with faculty in my liaison area
34. I support too many programs to build relationships with faculty.
35. My other job responsibilities interfere with my ability to build relationships with faculty.
36. I feel welcomed by some of the faculty in my liaison area
37. I have limited contact with some faculty in my liaison area
38. I feel my work as a liaison is respected by some of the faculty in my liaison area
39. I am an equal partner in the relationships I've built with faculty
40. Some faculty in my liaison area treat me like a subordinate.
41. I worry about my ability to build relationships with faculty in my liaison area.
42. My personality helps me to build relationships with faculty in my liaison area.
43. My knowledge of their subject area helps me to build relationships with faculty in my liaison area.
44. Some faculty in my liaison area treat me like a peer.
45. Building strong faculty relationships is the most important part of my job as a liaison.
46. Overall, I am satisfied with the relationships I've built with faculty in my liaison area.
47. Overall, how would you classify your relationship building experiences with faculty in this selected liaison area?
    - ◌ Positive
    - ◌ Neutral (some positive, some negative)
    - ◌ Negative

48. Please include any additional comments you would like to share about relationship-building with faculty in your liaison area. (optional)

Section IV. Liaison Librarian Support of Faculty Research

The following section asks you about supporting faculty research. For the purpose of this section, faculty research will include all aspects of the research process, from selecting research topics to dissemination of research findings.

You are asked to rate how confident you are in your ability to work with faculty on different aspects of the research process. If a statement refers to a service that you do not currently provide, please rate the item based on how confident you would feel if you were asked to offer the service (i.e. *I don't currently do this, but if I were asked to do this I would rate my confidence-level as…*). While many of these items could be referred to other resources, for the purpose of this study, please rate your level of confidence to personally provide these services.

Each item can be rated on the following scale from 1 to 4:

1: Not at all confident
2: Somewhat confident
3: Confident
4: Very confident

There are no right or wrong answers – please select the rating that best reflects your level of confidence to provide each service.

49. Assist faculty with formulating quantitative research questions.
50. Assist faculty with formulating qualitative research questions.
51. Assist faculty with formulating quantitative research hypotheses.
52. Instruct faculty on how to locate sources (literature) to support their research.
53. Assist faculty with creating data collection instruments (surveys, interview protocols, etc.)
54. Assist faculty with the IRB process.
55. Assist faculty with data collection for their quantitative research.
56. Assist faculty with data collection for their qualitative research.
57. Assist faculty with locating data for their quantitative research.
58. Assist faculty with locating data for their qualitative research.
59. Assist faculty with quantitative data analysis.
60. Assist faculty with qualitative data analysis.
61. Assist faculty with understanding copyright for their publications.
62. Assist faculty with understanding open access publishing options.
63. Assist faculty with adding items to an institutional repository.
64. Assist faculty with adding items to a disciplinary repository.
65. Assist faculty with properly citing their sources.
66. Assist faculty with citation management.
67. Provide faculty with citation analysis of their research publications.
68. Provide faculty with journal impact information.
69. Assist faculty with the development of a research data management plan.
70. Provide faculty with research data storage/preservation support.
71. Provide faculty with research data security support.

72. Provide faculty with research data sharing/use support.
73. Identify potential grant opportunities for faculty research.
74. Co-author research articles with faculty.
75. Compile literature reviews for faculty research.
76. Serve on a faculty member's research team (not grant-related)
77. Assist with development of faculty grant proposals (pre-grant submission).
78. Serve on a faculty member's grant team (post-grant submission)
79. Review faculty drafts (articles, book chapters) prior to submission for publication.

80. Please include any additional comments you would like to share about working with faculty on research-related activities. (optional)

81. Please feel free to share any final thoughts you may have about your work as a liaison. (optional)

APPENDIX C.

INTERVIEW PROTOCOL FOR LIAISONS

These questions represent the base questions that will be asked during the interview. Depending on responses, some questions may not need to be asked. In addition, the researcher may ask additional questions to follow up on specific answers or to ask for clarification.

For confidentiality, a pseudonym will be used in all write-ups of the research results. Please select the pseudonym you would like to use for this study.

Background

1. What is your current status at the institution? (Are you classified as faculty? Staff?)
2. When did you become a librarian at this institution?
    a. Have you worked at any other institutions as a librarian?
3. What liaison areas do you support?
    a. Are these areas related to your educational background (degrees held?)
4. When did you become a liaison for the department your faculty collaborator works in?
5. Describe for me what it is like to be a librarian here.
    a. What does your normal day look like?
    b. What are the expectations in terms of teaching? Research? Service?
6. In what ways do you and your colleagues share/inform/interact with one another?
    a. Describe your relationship with other librarians at your institution. What is your working environment like?
7. Describe your research to me - what is your personal research agenda/research interests? (Tell me in general terms about your research).
8. What role does collaboration play in your research?
    a. What sort of people do you generally collaborate with?
    b. How do you select your collaborators?
    c. Are there skills that you need from a collaborator to support your research?
    d. Have you collaborated on research or publications with other librarians at your institution or other institutions?

Relationship with Faculty Member

1. Do you remember when you met your faculty member? Describe that first interaction to me.
2. Can you talk about the most recent project that you have worked on with your faculty member?

    a. What was the impetus behind the project?
    b. How was the work divided within the project?
    c. Was this the first time you had worked with the faculty member?
    d. How long have you been collaborating with your faculty member?
3. Please describe your relationship with your faculty member?
4. What qualities or skills do you feel you have as a liaison that led your faculty member to want to work with you?
5. What drew you to want to work closely with your faculty member?
    a. What traits do they have that has made this an effective relationship?
6. Whose idea was it to collaborate on your project?
7. What skillset do you think your faculty member expects you to bring to your collaboration?
8. Are there services related to research that you wish you could offer your faculty member?
    a. If there were no limits in terms of money, time or resources, what would you hope that you could do in support of your faculty member's research?
9. Are there other projects you hope to collaborate on with your faculty member in the future?
10. What role do you feel your educational/professional background plays in your relationship with your faculty member?
11. Which of the following words best describes your faculty member? Peer, Colleague, Collaborator, Supporter, Assistant, Researcher, Project Manager? A different term not listed here?
12. Describe the interpersonal dynamic that you have with your faculty member.
    a. What roles do you play in your interactions/collaborations?
    b. How much effort do you feel you put into your relationship with the faculty member?

13. Is there anything else you would like to share about your relationship with your faculty member? Is there something important to you that my questions have not given you the chance to answer?

APPENDIX D.

INTERVIEW PROTOCOL FOR FACULTY

These questions represent the base questions that will be asked during the interview. Depending on responses, some questions may not need to be asked. In addition, the researcher may ask additional questions to follow up on specific answers or to ask for clarification.

For confidentiality, a pseudonym will be used in all write-ups of the research results. Please select the pseudonym you would like to use for this study.

Background

In order to establish an understanding of your position in the research process

1. What is your current status at the institution? (i.e. associate, assistant, tenured, adjunct, etc.)
   When did you become a faculty member at this institution?
   a. Have you worked at any other institutions as a faculty member?
2. Describe for me what it is like to be a faculty member here.
   a. What are the expectations for faculty of your standing in terms of teaching? Research? Service?
3. In what ways do you and your colleagues share/inform/interact with one another?
   a. What is your relationship like with other faculty in your department? On campus?
4. Describe your research to me – what is your research agenda/research interests? (Tell me in general terms about your research).
5. What role does collaboration play in your research?
   a. What sort of people do you generally collaborate with?
   b. How do you select your collaborators?
   c. Are there skills that you need from a collaborator to support your research?
   d. Have you collaborated with other faculty in your department? On campus? At other institutions?

Relationship with Liaison

1. Do you remember when you met your liaison? Describe that first interaction to me.
2. Can you talk about the most recent project that you have worked on with your liaison?
   a. What was the impetus behind the project?
   b. How was the work divided within the project?

    c. Was this the first time you worked with the liaison?
    d. How long have you been collaborating with your liaison?
3. Please describe your relationship with your liaison?
4. What qualities or skills do you feel you have as a faculty member that led your liaison to want to work with you?
5. What qualities or skills does your liaison have that led you to want to work with them?
    a. What traits do they have that has made this an effective relationship?
6. Whose idea was it to collaborate on your project?
7. What skillset did you expect your liaison to bring to your collaboration?
8. Are there other projects you hope to collaborate on with your liaison in the future?
9. If there were no limits in terms of money, time or resources, what would you hope that your liaison could do in support of your research?
10. What do you know about your liaison's educational and professional background?
11. Which of the following words best describes your liaison? Peer, Colleague, Collaborator, Supporter, Assistant, Researcher, Project Manager? Or would you use a different word?
12. Describe the interpersonal dynamic that you have with your librarian.
    a. What roles do you play in your interactions/collaborations?
    b. How much effort do you feel you put into your relationship with your liaison?
13. Is there anything else you would like to share about your relationship with your liaison? Is there something important to you that my questions have not given you the chance to answer?

APPENDIX E.

ADDITIONAL QUANTITATIVE ANALYSIS TABLES

Table E.1. *Carnegie Basic Classification of Respondents' Institutions*[a]

Institution Type	*n*	*%*
Doctoral Institutions		
Highest Research Activity	714	26.94%
Higher Research Activity	308	11.62%
Moderate Research Activity	222	8.38%
Master's Colleges and Universities		
Larger Programs	512	19.32%
Medium Programs	176	6.64%
Smaller Programs	110	4.15%
Baccalaureate Colleges		
Arts & Sciences Focus	232	8.75%
Diverse Fields	63	2.38%
Baccalaureate/Associate's Colleges		
Mixed Baccalaureate/Associate's Colleges	21	0.79%
Associate's Dominant	28	1.06%
Associate's Colleges		
High Transfer – High Traditional	46	1.74%
High Transfer – Mixed Traditional/Nontraditional	40	1.51%
High Transfer-High Nontraditional	13	0.49%
Mixed Transfer/Career & Technical-High Traditional	25	0.94%
Mixed Transfer/Career & Technical – Mixed Traditional/Nontraditional	31	1.17%
Mixed Transfer/Career & Technical – High Nontraditional	9	0.34%
High Career & Technical – High Traditional	1	0.04%S
High Career & Technical – Mixed Traditional/Nontraditional	8	0.30%
High Career & Technical – High Nontraditional	3	0.11%
Special Focus Institutions		
Four-Year: Medical Schools & Centers	33	1.25%
Four-Year: Other Health Professions Schools	10	0.38%
Four-Year: Business & Management Schools	8	0.30%
Four-Year: Arts, Music & Design Schools	8	0.30%
Four-Year: Law Schools	5	0.19%
Four-Year: Other Special Focus Institutions	2	0.08%
Totals	2626[b]	99.09%

a. *The following Carnegie Classification categories had no respondents: Two-Year: Health Professions, Two-Year: Technical Professions, Two-Year: Arts & Design, Two-Year: Other Fields, Four-Year: Faith-Related Institutions, Four-Year: Engineering Schools, Four-Year: Other Technology-Related Schools, and Tribal Colleges.*

b. *15 (0.57%) respondents did not select an answer and 9 (0.34%) respondents indicated they were at non-US or non-Carnegie institutions.*

Table E.2. *Comparison of Recent ALA Demographics and Survey Respondents' Demographics*

Demographic Category	2017 ALA Demographics	Survey Respondents' Demographics
Gender		
Female	81%	73.4%
Male	19%	24.0%
Racial Identity		
White	86.7%	83.7%
Minority	12.9%	13.2%
Hispanic/Latino	4.7%	4.6%
Age		
Under 25	1.1%	0.6%
25-34	17.1%	22.5%
35-44	22.8%	29.3%
45-54	21.7%	21.3%
55-64	21.5%	19.1%
65-74	13.5%	4.9%
75+	2.3%	0.1%

Note. 2017 ALA Demographics reported in "2017 ALA Demographic Study," by K. Rosa and K. Henke, 2017, *ALA Office for Research and Statistics.*

Table E.3. *Combinations of Liaison Work Types Selected by Respondents*

Types of Work	*N*	%
Collection Development, Instruction Services, Research Support, Outreach	1310	49.9%
Collection Development, Instruction Services, Research Support	718	27.4%
Instruction Services, Research Support, Outreach	128	4.9%
Collection Development, Instruction Services	101	3.8%
Instruction Services, Research Support	93	3.5%
Collection Development, Instruction Services, Outreach	70	2.7%
Collection Development	52	2.0%
Collection Development, Outreach	31	1.2%
Collection Development, Research Support	28	1.1%
Instruction Services	20	0.8%
Instruction Services/Outreach	19	0.7%
Collection Development, Research Support, Outreach	18	0.7%
Research Support	15	0.6%
Outreach	13	0.5%
Research Support/Outreach	8	0.3%

Table E.4. *Respondents' Ratings of Relationship-Building Statements*

Statement	SD	SWD	N	SWA	SA	Totals
I support too many programs to	696	783	517	445	109	2550
build relationships with faculty	27.3%	30.7%	20.3%	17.5%	4.3%	100.0%
My other job responsibilities	340	532	458	843	383	2556
interfere with my ability…	13.3%	20.8%	17.9%	33.0%	15.0%	100.0%
Some faculty in my liaison area	100	186	147	1085	1036	2554
seek me out…	3.9%	7.3%	5.8%	42.5%	40.6%	100.0%
I spend a lot of time building	138	513	728	799	379	2557
relationships with faculty…	5.4%	20.1%	28.5%	31.2%	14.8%	100.0%
I have limited contact with	122	199	194	1303	736	2554
some faculty in my liaison area	4.8%	7.8%	7.6%	51.0%	28.8%	100.0%
I feel welcomed by some of the	32	95	180	871	1378	2556
faculty in my liaison area	1.3%	3.7%	7.0%	34.1%	53.9%	100.0%
I feel my work as a liaison is	30	95	227	1039	1160	2551
respected…	1.2%	3.7%	8.9%	40.7%	45.5%	100.0%
I am an equal partner in the	118	447	570	923	492	2550
relationships I've built…	4.6%	17.5%	22.4%	36.2%	19.3%	100.0%
Some faculty in my liaison area	40	157	323	1082	950	2552
treat me like a peer	1.6%	6.2%	12.7%	42.4%	37.2%	100.0%
Some faculty in my liaison area	623	564	530	675	155	2547
treat me like a subordinate	24.5%	22.1%	20.8%	26.5%	6.1%	100.0%
My personality helps me to	64	262	472	1041	715	2554
build relationships…	2.5%	10.3%	18.5%	40.8%	28.0%	100.0%
My knowledge of my subject	126	355	425	935	712	2553
area helps me to build…	4.9%	18.8%	16.6%	36.6%	27.9%	100.0%
It has been difficult to build	306	467	283	1067	436	2559
relationships…	12.0%	18.2%	11.1%	41.7%	17.0%	100.0%
I worry about my ability to	522	561	478	739	250	2550
build relationships…	20.5%	22.0%	18.7%	29.0%	9.8%	100.0%
Building strong relationships is	59	255	512	1070	656	2552
the most important part…	2.3%	10.0%	20.1%	41.9%	25.7%	100.0%

Notes. SD=strongly disagree; SWD=somewhat disagree; N=neither disagree nor agree; SWA=somewhat agree; and A=strongly agree; Ellipses used to shorten some statements, full text available in Appendix B.

Table E.5. *Perception of Relationship-Building Item Analysis Summary*

Item	Item *M*	Item *SD*	Corrected Item-Total Correlation	Alpha if Item Deleted
It has been difficult to build relationships with some faculty in my liaison area*	2.66	1.28	0.52	0.84
Some faculty in my liaison area seek me out to build relationships	4.09	1.04	0.45	0.84
I spend a lot of time building relationships with faculty in my liaison area	3.30	1.11	0.51	0.84
I support too many programs to build relationships with faculty*	3.60	1.18	0.26	0.85
My other job responsibilities interfere with my ability to build relationships with faculty*	2.84	1.28	0.42	0.85
I feel welcomed by some of the faculty in my liaison area	4.36	0.86	0.53	0.84
I have limited contact with some faculty in my liaison area*	2.08	1.04	0.38	0.85
I feel my work as a liaison is respected by some of the faculty in my liaison area	4.26	0.86	0.56	0.84
I am an equal partner in the relationships I've built with faculty	3.47	1.13	0.61	0.84
Some faculty in my liaison area treat me like a subordinate*	3.32	1.27	0.40	0.84
I worry about my ability to build relationships with faculty in my liaison area.*	3.13	1.30	0.51	0.85
My personality helps me to build relationships with faculty in my liaison area	3.81	1.03	0.42	0.85
My knowledge of their subject area helps me to build relationships with faculty in my liaison area	3.68	1.16	0.41	0.85
Some faculty in my liaison area treat me like a peer	4.08	0.94	0.57	0.84
Building strong faculty relationships is the most important part of my job as a liaison	3.78	1.01	0.40	0.85
Overall, I am satisfied with the relationships I've built with faculty in my liaison area	3.59	1.10	0.72	0.83

Note. *Items were reverse-scored for analysis

Table E.6. *Confidence Ratings for Supporting Faculty Research Activities with Median Ratings of "Confident" or "Very Confident"*

Activities	Not at all confident	Somewhat confident	Confident	Very confident	**Totals**
Compile literature reviews for faculty research	222 9.0%	556 22.5%	859 34.8%	830 33.6%	2467 100.0%
Assist faculty with locating data for their qualitative research	358 14.5%	826 33.6%	853 34.7%	424 17.2%	2461 100.0%
Assist faculty with understanding copyright for their publications	181 7.3%	795 32.1%	914 36.9%	587 23.7%	2477 100.0%
Assist faculty with understanding open access publishing options	202 8.2%	740 29.9%	894 36.1%	638 25.8%	2474 100.0%
Assist faculty with adding items to an institutional repository	341 13.8%	616 25.0%	806 32.7%	700 28.4%	2463 100.0%
Assist faculty with citation management	89 3.6%	354 33.4%	829 33.4%	1207 48.7%	2479 100.0%
Provide faculty with citation analysis of their research publications	355 14.4%	728 29.5%	771 31.2%	617 25.0%	2471 100.0%
Provide faculty with journal impact information	378 15.3%	655 26.5%	715 28.9%	722 29.2%	2470 100.0%
Instruct faculty on how to locate sources to support their research	8 .3%	114 4.6%	615 24.8%	1742 70.3%	2479 100.0%
Assist faculty with properly citing their sources	30 1.2%	226 9.1%	843 34.0%	1381 55.7%	2480 100.0%

Table E.7. *Confidence Ratings for Supporting Faculty Research Activities with Median Ratings of "Not at All Confident" or "Somewhat Confident"*

Activities	Not at all confident	Somewhat confident	Confident	Very confident	**Totals**
Assist faculty with quantitative data analysis	1372 55.8%	707 28.8%	266 10.8%	112 4.6%	2457 100.0%
Provide faculty with research data security support	1565 63.4%	576 23.3%	238 9.6%	91 3.7%	2470 100.0%
Provide faculty with research data sharing/use support	1285 52.2%	676 27.4%	361 14.7%	141 5.7%	2463 100.0%
Assist faculty with formulating quantitative research questions	857 34.5%	960 38.7%	504 20.3%	161 6.5%	2482 100.0%
Assist faculty with formulating qualitative research questions	485 19.5%	940 37.9%	770 31.0%	288 11.6%	2483 100.0%
Assist faculty with formulating quantitative research hypotheses	1018 41.1%	926 37.4%	404 16.3%	126 5.1%	2474 100.0%
Assist faculty with creating data collection instruments	835 33.7%	944 38.1%	512 20.7%	187 7.5%	2478 100.0%
Assist faculty with the IRB process	949 38.5%	813 32.9%	486 19.7%	220 8.9%	2468 100.0%
Assist faculty with data collection for their quantitative research	957 38.8%	877 35.6%	440 17.8%	191 7.7%	2465 100.0%
Assist faculty with data collection for their qualitative research	653 26.4%	911 36.8%	649 26.2%	262 10.6%	2475 100.0%
Assist faculty with locating data for their quantitative research	508 20.6%	884 35.8%	731 29.6%	345 14.0%	2468 100.0%
Assist faculty with qualitative data analysis	1036 42.1%	865 35.2%	389 15.8%	168 6.8%	2458 100.0%
Assist faculty with adding items to a disciplinary repository	594 24.3%	788 32.2%	698 28.5%	369 15.1%	2449 100.0%
Assist faculty with the development of a research data management plan	1058 42.9%	782 31.7%	422 17.1%	207 8.4%	2469 100.0%
Provide faculty with research data storage/preservation support	1115 45.2%	764 31.0%	399 16.2%	190 7.7%	2468 100.0%
Identify potential grant opportunities for faculty research	953 38.7%	935 37.9%	430 17.4%	147 6.0%	2465 100.0%
Co-author research articles with faculty	678 27.5%	833 33.8%	624 25.3%	331 13.4%	2466 100.0%
Serve on a faculty member's research team (not grant-related)	494 20.1%	769 31.3%	762 31.0%	434 17.6%	2459 100.0%
Assist with development of faculty grant proposals (pre-grant submission)	704 28.5%	933 37.7%	562 22.7%	275 11.1%	2474 100.0%
Serve on a faculty member's grant team (post-grant submission)	755 30.6%	847 34.3%	592 24.0%	272 11.0%	2466 100.0%
Review faculty drafts prior to submission for publication	519 21.0%	778 31.5%	708 28.7%	461 18.7%	2466 100.0%

Table E.8. *Confidence in Supporting Faculty Research Activities Item Analysis Summary*

Item	Item *M*	Item *SD*	Corrected Item-Total Correlation	Alpha if Item Deleted
Assist with formulating quantitative research questions	1.99	.90	.62	.94
Assist with formulating qualitative research questions	2.35	.92	.60	.94
Assist with formulating quantitative research hypotheses	1.85	.87	.63	.94
Instruct on how to locate sources to support research	3.66	.58	.39	.94
Assist with creating data collection instruments	2.01	.91	.62	.94
Assist with the IRB process	2.00	.97	.55	.94
Assist with data collection for their quantitative research	1.94	.93	.64	.94
Assist with data collection for their qualitative research	2.21	.95	.63	.94
Assist with locating data for their quantitative research	2.38	.96	.60	.94
Assist with locating data for qualitative research	2.56	.93	.58	.94
Assist with quantitative data analysis	1.64	.85	.59	.94
Assist with qualitative data analysis	1.88	.92	.61	.94
Assist with understanding copyright	2.78	.90	.50	.94
Assist with understanding open access publishing options	2.81	.92	.52	.94
Assist with adding items to an institutional repository	2.77	1.02	.45	.94
Assist with adding items to a disciplinary repository	2.35	1.00	.50	.94
Assist with properly citing their sources	3.46	.70	.45	.94
Assist with citation management	3.28	.83	.44	.94
Provide with citation analysis of research publications	2.68	1.01	.55	.94
Provide with journal impact information	2.73	1.04	.48	.94
Assist with the development of a research data management plan	1.92	.96	.62	.94
Provide research data storage/preservation support	1.87	.95	.60	.94
Provide research data security support	1.54	.81	.57	.94
Provide research data sharing/use support	1.74	.91	.63	.94
Identify potential grant opportunities	1.91	.89	.57	.94
Co-author research articles	2.25	1.00	.60	.94
Compile literature reviews for faculty research	2.93	.96	.54	.94
Serve on a faculty member's research team	2.47	1.00	.67	.94
Assist with development of faculty grant proposals	2.18	.96	.65	.94
Serve on a faculty member's grant team	2.17	.98	.66	.94
Review faculty drafts prior to submission for publication	2.45	1.02	.57	.94