

» “Depriving our communities of libraries will deprive our society of its ability to survive.”

- NEIL GAIMAN

# Strategic Library™



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## The Power of Empathetic and Collaborative Leadership

BY BARBARA I. DEWEY

### INTRODUCTION

Empathetic and collaborative leadership are emerging as essential requirements for library leaders in research libraries today and more generally in higher education. Why are these traits important, desirable, and altogether necessary in today's volatile and competitive environment? This chapter explores empathetic and collaborative leadership in its various dimensions as an increasingly “must have” characteristic of research library leaders.

This paper provides background on the concepts of empathetic and collaborative leadership. Select areas in which empathetic and collaborative leadership can advance research libraries to become more effective, fair, and equitable environments will be examined. These include, but are not limited to, organizational structure, diversity

and inclusion efforts, recruitment, orientation, fundraising, internal meetings, professional meetings, and effective stakeholder interaction.

### EMPATHETIC AND COLLABORATIVE LEADERSHIP

Empathetic leadership is defined by the *Financial Times* as “the ability of leaders to understand, relate to and be sensitive to customers, colleagues and communities.”<sup>1</sup>

According to Wilson and Foltz “empathy is recognizing and understanding the feelings, motives, and situations of others and being sensitive to these.”<sup>2</sup> It is important to note that not everyone understands what empathetic leadership means. For example, I spoke with an applicant for a librarian position and emphasized our desire for the successful candidate to exhibit empathetic leadership. The applicant had no idea what was meant by the phrase “empathetic leadership.” In trying to



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explain I realized that it might be easier to relate what it is NOT. The opposite of empathetic leadership is arrogant, self-centered, and egotistical leadership. The empathetic leader, by contrast, is sharply focused on the success of the library and its stakeholders. The arrogant leader is sharply focused on how decisions and activities benefit his or her career.

Another description of opposition to empathy is narcissism which includes traits such as a strong sense of superiority, a drive to dominate one's environments, a high degree of restlessness, and a strong need for attention and recognition.<sup>3</sup> Chatterjee and Hambrick note that "highly narcissistic CEOs --- defined as those who have very inflated self-views continuously reinforced --- can be expected to engage in behaviors that have major consequences, not only for the individuals who interact directly with them, but also for broader sets of stakeholders."<sup>4</sup>

Collaborative leadership exquisitely pairs with empathetic leadership in that it leverages a broad base of expertise across, not only the library, but the institution and beyond. Successful collaborative leaders have an empathetic streak because they are able to see the benefit in working with others. Arrogant leaders, while they might use others to their own benefit, do not believe that they need partners to succeed. True collaborative leadership can be examined as it relates to a collaborative effort or as it plays out in leadership that might shift in a group depending on talents needed to meet goals.

Together empathetic and collaborative leadership form a powerful way of leading a multidimensional organization such as a research library embedded within a larger higher education environment. Pairing the two is ideal in an environment where all disciplines and multidisciplinary areas are supported. However, challenges to successful implementation of this approach include perceived time constraints, turf, competition, aversion to conflict, and old habits.

Interestingly leadership styles need to address differences in the higher education environment. Effectively leading academic professionals is not always about showing them the way or telling them what to do or how to do it but working more collaboratively towards a common goal. Davidson, a highly respected psychologist, considers that the greatest care and service-orientation is required to help these highly expert and bright individuals stay on target.<sup>5</sup> Sug-



gestions for leaders include listening deeply, verify understanding of the other person, show respect and willingness to help, and be authentic and open.<sup>6</sup>

Empathetic leadership is not always directive but includes encouragement for others to help lead the way. In fact there are growing voices speaking about radical empathy or working very hard to extend empathy to people or groups where it seems difficult or strange to do so.

Karnofsky puts forward three principles to support the notion of radical empathy. These include:

- Not quickly dismissing arguments that seem strange or even laughable
- Supporting deeper analysis
- Not limiting ourselves to conventional problems<sup>7</sup>

Radical empathy is congruent with an academic environment valuing openness, innovative, and novel ways of problem-solving. Thinking outside of the box perspectives thrive on this type of approach.

#### **Downsides of Empathy and Collaborative Leadership**

There are perceived (by some) dangers of being an empathetic leader and some call into question the notion of empathy in and of itself. A few of these dangers include poor judgement benefiting the few over the many, damaging diversity efforts since people naturally empathize with others like themselves, an empathetic approach which is too narrow because of one's band width to empathize with many. Empathy can lead to distress or burnout, and it is fleeting and inconsistent.<sup>8</sup> However, compassionate people can be balanced, rationale, and forward thinking to avoid these pitfalls.

Empathy and collaboration are some-

times considered to be soft skills. This assertion can come with an erroneous link between empathy and gender. It can also include thoughts on success of dominant leadership with the default being a member of white male society. Libraries are, by definition, much broader than one dominant group making empathy and collaboration even more essential through the organization. However, a real danger of empathetic characteristics lies in the potential tyranny of consensus. Empathy must be tempered with a strategic focus towards the future and, for leaders, the path chosen might not be comfortable for all. Clear and accurate messaging needs to accompany these chosen paths so everyone is aware of the why.

#### **Organizational Structure**

Empathy and collaboration should be infused in all aspects of the organization including in its structure and its daily operations. Something so "normal" as an organizational chart focusing on hierarchy rather than on work-related content (and most organizational charts make this mistake) can send messages of elitism and condescending behavior to staff. Charts are more difficult to fix but creative ways to describe the organization could be considered such as a starburst representation rather than a top down view. Implications that all are not welcome, for example, in the administration offices are antithetical to empathy and collaboration. These issues are difficult ones to overcome. Strategies as basic as arranging for meetings for each and every new librarian and staff member by the director can actually set a caring tone immediately.

#### **Diversity and Inclusion**

It turns out that empathy and collaboration play a big part in efforts towards diversity and inclusion. An empathetic approach ensures that other points of view and perspectives are taken into consideration. Collaboration ensures that action actually incorporates a diverse set of expectations and desires. Action items become more inclusive and based on more comprehensive knowledge to the situation and its participants. Empathy and collaboration can help organizations at least partially avoid bias which, according to Ross, occurs "without people realizing they are happening." He goes on to assert that "human beings are consistently, routinely, and profoundly biased." Therefore, anything that can be done to mitigate bias is helpful to a great outcome.<sup>9</sup>

## RECRUITMENT

Explicit advancement of empathy and collaboration can be a major advantage for recruitment in research libraries. Recently, Penn State Libraries has been engaged in recruiting for a number of leadership positions emphasizing joining “a highly integrated and collaborative organization,”<sup>10</sup> and seeking a “strategic and empathetic visionary...with a commitment to shared governance.” Other postings seen recently articulate characteristics of the organization, itself including a “diverse, dynamic, and collegial atmosphere” and “a respectful and inclusive educational and workplace environment.”<sup>11</sup> Another asks for individuals to develop partnerships within and beyond campus boundaries and under requirements asks for “proven ability to work both independently and collaboratively as part of a team.”<sup>12</sup> These kind of statements including many more related to commitment to diversity and inclusion are being more common on job descriptions. Hallway conversations indicate that such content supports positive reaction from readers and actual applicants.

## ORIENTATION

Empathy and collaboration are also important components of effective onboarding programs. Working together to create group-based and individual customized orientation programs results in good will and better trained staff. Features, such as individual meetings with library leadership, go a long way to incorporating empathetic and collaborative qualities throughout the organization, not just at the top. Direct access to caring and interested leadership also mitigates some of the rankism that is endemic in higher education, including research libraries, where professional/faculty librarians are seen as looking down on rank and file staff. Orientation group programs including librarians and staff at all levels are also effective ways to promote collaboration and empathy.



## FUNDRAISING

The relationship between fundraising and empathy is a “no brainer.” The hallmarks of great fundraisers include superior listening skills leading to deep insight into donor interests and motivations. Great fundraisers are well versed in donor perspectives related to race and gender.

Loehr details in *Gender Matters: A Guide to Growing Women’s Philanthropy* important characteristics of giving by women and how to leverage these characteristics for greater outcomes.<sup>13</sup> Libraries’ emphasis on collections and accompanying services and programs supporting the preservation of scholarship in race, gender, and culture, can have a positive impact on peaking interest in philanthropy by people who previously were not considered as potential fundrais-

ing sources.

The most successful fundraising efforts rise from collaborations and partnerships between the development team and library management and key staff. The knowledge that what seems to be a small act of kindness by any library staff towards potential library donors (i.e. anyone using the library) can result later on in a large gift and plenty of good will. Added to this is strong collaboration between fundraisers aligned with a variety of colleges and departments and between fundraisers specializing in certain types of “asks” (annual giving, major gifts, specialized campaigns, etc.). Empathy is important, too, between all collaborators and stakeholders because each fundraising specialty has important differences in their perspectives and methodologies.



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## INTERNAL MEETINGS

Empathy and collaboration are also important components of library meetings of all types. At the local level library administrators or others running meetings should make a concerted effort to truly involve all participants. The not so recent publication, *Team Power: Making Library Meetings Work*, co-edited by this author and Sheila D. Creth, included timeless factors such as:

- Articulating meeting expectations that participants are to work collaboratively and view themselves as a team
- Rewarding group accomplishments
- Beginning each meeting with a statement that participants will share responsibility for the quality and outcomes of the meetings
- Rotating responsibility for chairing or facilitating meetings<sup>14</sup>

## PROFESSIONAL MEETINGS

Professional meetings sponsored by regional, national, or international library organizations are also important venues for empathetic and collaborative behavior. A major goal should be to make all attendees, particularly those new to the group or organization, feel welcome. Cliquish and elitist behavior where only those of a certain “group” sit together or are called on to speak at the meetings should be avoided at all costs. Participants should make a special effort to reach out to newer members and get to know them. Also, new members should do the same because sometimes those veteran members of a group start to feel left out if their numbers are dwindling. Attention to these behaviors will result in better and more productive professional meetings which will be sustained over time since all are participating. As professional groups become more diverse in all ways it becomes even more essential to exhibit empathy and collaboration.

## FOCUS ON STAKEHOLDERS

Librarians pride themselves in approach-

ing work with a user-centered focus. What does this mean in the context of empathy and collaboration for different stakeholders? Students are certainly front and center for academic librarians. An empathetic and collaborative approach is to include them in key decision areas such as space and services reconfiguration. Special student advisory groups sometimes work well for this purpose. Likewise faculty are, not only key stakeholders, but important partners in the educational process. Both faculty and librarians should also include student input into plans forming a powerful triangle of co-creation in the educational mission. Faculty need to know that their goals and objectives are front and center of the collaboration. Empathy with this important group focuses on keen listening and analytical skills resulting in excellent plans moving forward. Of course staff are the engines that operate and advance our libraries. They need tremendous empathy and a change to collaborate.

## CONCLUSION

Employing empathetic and collaborative leadership is a “must do” in research library environments today. These traits never go out of style and, indeed, are becoming more prominent and desirable in today’s leaders. Empathy combined with great skill and determination to build and nurture partnerships are keys to success in research libraries and higher education today. Integration into all aspects of the organization and beyond is not only doable by library leaders at all levels, but essential for success in the mid-21st century. The empathetic and collaborative leader as well as librarians and staff will advance, not only the library, but the institution and the profession into the future. ■

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# Your Coworkers Deserve Good UX, Too

BY LYNN HOFFMAN

Let's face it—when it comes to providing great internal service to your colleagues, it can be easy to fall into a frustration trap.

Imagine this scenario. Your phone rings, and it's a coworker in another department at your library. "What do I need to do to get my email address updated since I just got married?" they ask.

You know this information is on your organization's intranet. You know that for any email-related questions or issues, staff should send a request to the information technology (IT) department help desk. You also remember that your coworker asked you this exact question fourteen months ago when they got engaged, and you quickly search for and find the email reply you sent to them.

Your response to your coworker might fall somewhere along a spectrum ranging from answering the question to shaming the person for not knowing the answer, depending on your existing relationship with the person, your mood, and your current supply of patience. In many organizations, when we talk about improving the quality of our internal service, we often focus on the frustrated end of that spectrum, where our discussion might turn to examples of poor responses:

- "Well, it's on the employee intranet."
- "Did you submit a request to the help desk? That's what you're supposed to do with anything email-related."
- "I'll forward my response back to you from when you asked me this before that tells you what to do."

If we look at this kind of situation through a user experience (UX) lens, we might find pain points on both sides that can actually be addressed, lessening frustration for everyone involved. First, though, let's look at why this kind of problem tends to crop up more frequently in internal service situations than it does externally.

If you got a similar question from a patron or customer, your responses would—

**Table 1. Internal vs. external service responses.**

	Patron, Student, Client, Community Member, etc.	Coworker, Colleague, Staff Member, etc.
A ____ asks the same question three times in one week.	Politely and professionally answer the question as though it were the first time I heard it.	Get frustrated and complain to an officemate about why this person doesn't remember the email I sent out about this a month ago.
A ____ approaches my desk and interrupts a conversation with a teammate to ask a question.	Tell the person it's not an interruption—it's my job to answer your questions.	Wonder why the person couldn't just email me or wait until I finished with my conversation.
A number of ____ seem to be confused about how to operate a piece of self-service equipment.	Create clear step-by-step signage in the short-term; look for a product with a more intuitive user interface in the long-term.	Suggest to supervisors that some of their staff need retraining on how to use this piece of equipment.
A noisy air handler makes it hard for ____ to hear during large group conversations in a meeting room.	Ensure the conversation is accessible by providing amplification.	Tell participants to speak up.
A ____ filling out a web-based form provides date information in the wrong format.	If we haven't already set the form up to mask that field or normalize data on the back end, make it super clear how we want the date.	Send out an email to all staff saying, "Please make sure you enter the date like this..."

hopefully—be different. For example, if a customer asks, "What do I need to do to update my address for my library card?" you're probably not going to say:

- "Well, it's on the library's website."
- "Did you submit a request to Circulation? That's what you're supposed to do with anything account-related."
- "I'll give you another copy of our new borrower brochure that you got when you signed up for a card that tells you what to do."

No matter how many times you've heard the question, no matter how many other places the information might live, if this question comes to you externally, you're going to happily, helpfully answer it—depending on your library's policies and procedures, of course: "I can help you with that right here" or "You can update it yourself online from your library account—let me show you how" or "Just bring your address information to the checkout desk, and they'll be able to help you with that." You may be experi-

encing the same kind of frustration—which you keep inside your head or share with colleagues in the workroom later—but your response is moderated by the fact that you and the customer implicitly share the definition of your roles in this interaction. You see yourself as the provider of a service and the customer as a customer; the customer sees themselves as a customer and you as a provider of a service. Because you share the same view of your roles, it's relatively easy to set aside your frustration and provide great service. See **Table 1**.

The difference in an internal service interaction is that you may not share the same definition of roles with your coworker. If you're the person asking the question, you probably see yourself as a customer and your coworker as the provider of a service. If you're receiving the question, however, you might see yourself and your coworker as fellow library employees with access to the same information resources and hampered by the same time limitations. That mismatch of expectations can

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lead to less-than-optimal interactions: your coworker expects the same kind of response as the external customer does, but you might express your frustration more directly to your fellow employee.

From a service skills standpoint, anything we can do to cultivate the same patience and generosity we show externally will help improve our coworkers' experiences. From a UX standpoint, there may be other ways to minimize or avoid the potentially frustrating situation in the first place.

One of the UX techniques with the most potential impact on internal service is to find new ways to provide critical information at key decision points. Let's take our email address example again, and think about possible reasons your colleague chose to pick up the phone and call:

- They know you have the answer because you answered the question before.
- They have two minutes before they run to a meeting, and it's easier to pick up the phone and call you than it is to log back into their email to ask or to search for your previous answer.
- They think you're a nice person and a call gives them an opportunity for a positive interpersonal interaction with you after they just spent an hour dealing with cranky patrons on the desk.
- They already spent ten minutes browsing the employee intranet to find the information, and it's not in any of the places they looked.
- They know you answered it before, but they're uncertain about their ability to find old messages in their email. Asking

you means they can avoid the discomfort of feeling lost.

I have simply imagined some of the possibilities, but UX data-gathering techniques can give you more specific information about your own coworkers. Here are some techniques you can try:

- When you identify frequently asked questions, interview the coworkers who asked the questions about their actual approaches to finding answers.
- When it comes to intranet and other internal digital resources, apply the same UX tools you do to your externally-facing websites—card sorting, tree testing, first-click testing, etc.—to find out whether you've really made it as easy as possible to answer common questions. Is the person asking the question because they expect to find this information in a particular place, and it's not there?
- Map the user journey for common internal workflows, and you may find circumstances under which coworkers must jump through unnecessary hoops to accomplish a task.

These and other user-centered approaches can lead to major improvements in internal service, but there is one facet to the relationship that can make solving UX problems more complicated. When working on internal processes, we have to balance coworker needs with organizational needs, especially when it comes to choices of tools and procedures. Full pain-point elimination for the end user is a fine goal, but when it comes at the cost of workflow efficiency, the result may not be a net positive for the organization.

For example, over the last several years the technology team at my library has made a number of changes to our process for



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reporting problems that have undoubtedly improved our coworkers' experiences as users. Starting from a point where you had to know which individual IT staff member to talk to about the specific problem you had, we moved to a single email distribution list that went to all IT staff. Instead of relying on the user to know all of our team's specific responsibilities and areas of expertise in order to get their problem solved successfully, we asked staff to just send everything tech-related to the email address for our Help Desk—which is, helpfully, helpdesk. In addition to making the notification process easier for staff, it also helped our supervisors to handle requests more equitably.

We took another improvement step when that single email address became the mechanism for submitting an issue to our more formal ticketing system, rather than distributing an email message to team inboxes. With the ticketing system, staff get more information about who's working on their issue and what's happening with it, and IT has more information about repeat issues or common problems. What we found, though, is that no matter how many times we ask people to provide as complete information as possible, a large number of emails and tickets came in without some necessary detail. "The workstation on the left" doesn't give us the unique ID of a computer, which is what we need in order to remotely troubleshoot a problem at a branch. "A patron is having a problem with X" doesn't give us enough specifics about the patron—or the problem—for us to replicate what's happening. When we need to follow up with the staff member, it not only adds a delay to the process, but results in frustration on both sides.

To try to address this issue, we've created a form that we've asked people to use

when submitting their problems. On the IT side, the difference between those last two iterations—creating a ticket from an email versus filling out a form—is that we get more complete information. On the user side, we're asking staff to use different behavior to submit their question—instead of writing a quick email, they have to go to a form that has a number of questions and some required fields.

From a strict UX perspective, especially now that staff are accustomed to just sending everything to a single email address, we're introducing a barrier that makes it somewhat more cumbersome to submit an issue. If a staff member already has their email open, sending a message is a much more direct way to communicate than to go to our intranet, navigate to the form, make some decisions based on drop-down menus, and fill in required fields. From a broader service perspective, this approach should provide improved tech service in the form of faster ticket assignment based on the type of issue reported, less need to go back and forth with the staff member to collect additional information about the problem, and faster time to a solution.

So when it comes to internal service, where is it acceptable to draw that line? I would argue that it's best handled as a negotiation. Employing good UX strategies naturally opens up a dialogue between the customer and the service provider, and being able to frame this conversation in terms of finding the best solution for the organization will, at the very least, help everyone understand the issues and priorities involved. In our situation, we've been successful in convincing staff to send the majority of technology requests through the form. We are getting more consistent information about problems, and assigning

and clearing those tickets faster, so being able to report an improvement in service helps. We also communicated our plan to survey staff about the usability of the form, so we can make it as easy as possible to use. This kind of communication also reinforces our belief that we are all on the same team and that we want to be responsive to our colleagues in the same way front-line staff are responsive to our patrons and community members. ■

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# Research Data Management Services and Strategic Planning in Libraries Today

## » A Longitudinal Study

BY ELISE GOWEN & JOHN J. MEIER

### INTRODUCTION

Since being widely identified as a potential new area for service growth in the mid-2000s, research data management (RDM) and related services have been a frequent touchstone in the strategic plans of many libraries. Such services include consultations and workshops on how to manage research data, guidance on writing a research data management plan, and support in finding repositories for the long-term preservation of data. An individual library's capacity to integrate RDM services into the research lifecycle of its patrons is based on factors such as size, budget, and mission of the institution. Some libraries have been able to develop this at a large scale, and others have not. Some have been able to operate at a larger scale by working with a consortium of universities. While the number of institutions that offered these services has grown rapidly since the mid-2000s, there are relatively few longitudinal studies of these services and whether the steps taken to grow the services are still being implemented several years on.

This study attempted to track the changes in RDM services and staffing among Association of American Universities (AAU) libraries over the past five years and compared those changes to the aspirations about research data management each library had stated five years earlier in interviews with library directors and deans along with strategic plans where available. The AAU institutions have similar characteristics with each other, while also being diverse in geographic location and missions. It should be noted that not all libraries in this group are members of the Association of Research Libraries (ARL) and those that are have

**Table 1. Coding scheme for trends over time**

Field	Description
Gained	The library added this between 2014 and 2019.
Kept	The library had this and there was no change.
No	The library did not have this and there was no change.
Lost	The library lost this between 2014 and 2019.

widely varying levels of funding ("Spending by University," 2017). This group of libraries has been a frequent object of study, allowing for the observance of longitudinal patterns. However, the results obtained may not be applicable to other regions or to other institutional contexts.

One of the ironies this study has revealed is how few open datasets on research data management services exist in the library literature. Most often, the results of study in this area are only presented in aggregate or analyzed form. This may be due to the lack of disciplinary data repositories for library and information sciences (note the absence of anything like "library science" as a potential subject heading in the Registry of Research Data Repositories (<https://www.re3data.org/browse/by-subject/>)). One major exception of this trend is the work done by Kristin Briney, Abigail Goben, and Lisa Zilinski, who conducted research into research data management services in 2014 and published their data along with the article (2015b). While the focus of the Briney paper was on data policies, many of the elements of their dataset provide information on library services and staffing as it pertains to RDM. The study collected data from the data services policies posted online by 206 American universities with "Very High" or "High" research activity, which included almost all of the AAU librar-

ies. They found that data management services and data repositories had become typical for major research institutions.

### LITERATURE REVIEW

Beginning a little over a decade ago, library literature began to discuss taking a more active role in data curation for researchers. While writers like Gold 2007 noted that "Data Librarianship," like most forms of format-specific librarianship, was often conceptualized in terms of acquiring and curating data, Gold proposed that data librarianship might also involve taking a more active role in the data creation process, or, as the article put it, the "upstream" parts of the data research cycle, as opposed to the traditional "downstream" acquisition and collection of published datasets (Gold, 2007).

Coinciding with the rise of institutional repositories (IR) in the libraries, libraries attempted to address researchers' growing need to manage and preserve their research data. IRs have played an important role in growing interest in research data as an aspect of library services, but it has not always been clear if research data should be a key component of content preserved in institutional repositories (Shreeves & Cragin, 2008). Nonetheless, these repositories were some of the earliest examples of libraries providing research data management in the libraries (Witt, 2008). Early researchers



into the new, library-housed data curation repositories noted that the libraries had “laid the groundwork for future, higher-level work to formalize data curation services for the institution”(Witt, 2008). In anticipation of an increasing need for data services, libraries began hiring traditional liaison librarian positions with data services skills as well as creating new data services librarian positions (Delserrone, 2008).

Research data management was given a major boost of importance in the sciences with the announcement that the National Science Foundation would begin requiring the inclusion of a data management plan for funding. A majority of responding libraries starting RDM services in 2011 said the NSF requirement was the main reason they introduced the services (Fearon, Jr., Gunia, Pralle, Lake, & Sallans, 2013). The ARL SPEC Kit provides a useful and broad-ranging overview of the state of RDM services in 2013, the year before Briney et al. conducted their research. The Kit includes surveys of the kinds of RDM services on offer, snapshots of the strategic plans and data repositories of the surveyed institutions, and titles of data librarians.

Even though data services have expanded greatly in the past ten years, recent review of RDM studies in the library literature indicates the role of the library is still not clear (Perrier, Blondal, & MacDonald, 2018). While librarians are effective in offering education and training programs, they lack more technical expertise with data. Libraries that wish to expand their services beyond the archiving and preservation of data are developing staff with expertise in data analysis tools and services.

Libraries need to continually adapt to the changing needs of their users. Many fields have shown a growth in data dissemination practices that can involve the library as publisher (Walters, 2012). However, the majority of researchers do not use current best practices in documentation, dissemination, and preservation of data despite a surge in data generated (Shen & Shen, 2016). A study conducted at Virginia Tech in 2016 found that a multitude of services, education, and technology infrastructure are needed for effective data management and preservation, including strong metadata standards and automated processes. New technologies such as machine learning-based reviewing of data would help with the amount of data produced.

For libraries to create new services and

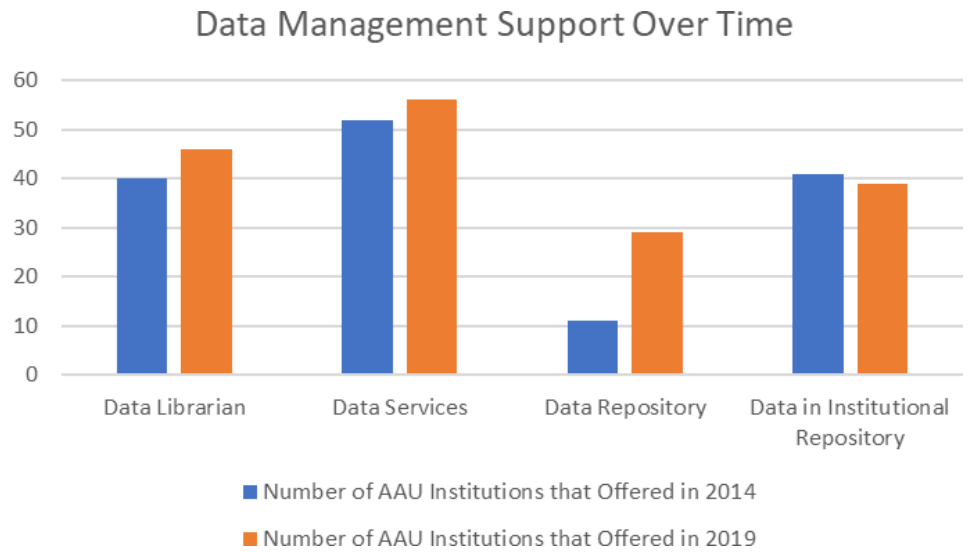


Figure 1. Data Staff and Service Comparison from 2014 to 2019

positions around research data, long term decision-making by library leadership is needed. Strategic planning is often used by academic libraries to map out their priorities for future planning and respond to emerging trends (Saunders, 2015). Research data services have been a priority for some libraries in recent strategic planning cycles, though not a majority (Meier, 2016). Both Saunders (strategic plans) and Meier (interviews) independently found about 40% of libraries mentioned RDM services as a strategic priority in 2015. Subsequent studies have generally taken a qualitative approach to RDM services, like Bryant 2018, which conducted case studies of four institutions and noted that at those institutions, RDM services were developed in anticipation of researcher needs before they received any researcher demand, and have since undergone shifts in their focus in response to researcher input and use. (Bryant, Lavoie, Malpas, & OCLC Research 2018).

#### METHODOLOGY

In order to evaluate the state of data services being offered in academic libraries 5 years ago, Briney’s published dataset (Briney 2015b) was used as a starting point. Though primarily focused on data policy, the Briney data also recorded public online information such as whether university libraries had a data librarian, data services, a data repository, and accepted data in an institutional repository. Together, these fields create a picture of the data services offered by an institution.

The AAU libraries from this study were selected as a subset of the data to compare to Meier (2016) to determine the impact of strategic decision making. The two Cana-

dian AAU institutions from Briney’s dataset were excluded as they were not included in both studies, for a total of 60 libraries.

This study attempted to determine if strategic priorities of libraries, as determined by interviews with library deans and directors in Meier (2016), aligned with changes to research data services. The first hypothesis of this study was that libraries with data management services as a strategic priority would have greater gains in services than those that did not mention it in the 2015 interviews. The second hypothesis of this study was that there would be an overall increase in library staff, services, and data repositories in the population.

We also collected strategic planning documents as an additional way to understand strategic priorities for libraries, both in 2014 and in 2019. This was heavily inspired by the work of Saunders (2015) who drew from a different sample of universities and consulted their strategic plan documents to understand what libraries were saying their priorities were. We chose to make use of a similar process because it would easily allow us to compare the strategic plans that covered 2014 to those of 2019. Although we were not able to find a 2014-era strategic plan for every library whose dean was interviewed by Meier, we were able to find 2014-era plans for 35 of the 44 institutions interviewed by Meier, and 2019-era plans for 41 of the 44 institutions.

For consistency we adhered to the methodology of Briney (2015b) as much as possible in terms of coding for data services. Our key for coding is based on Briney (2015b), with some variations described in

## Presence of Data Librarian

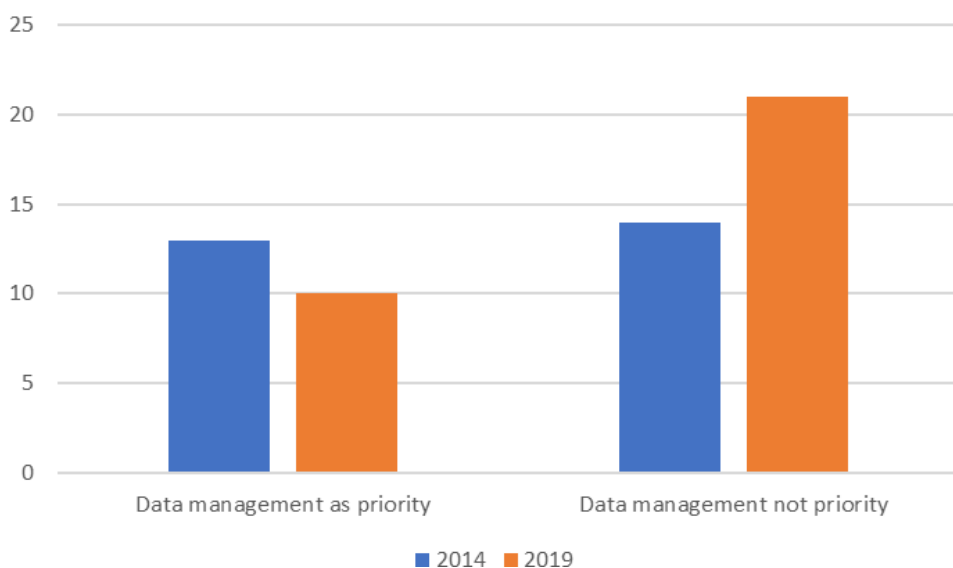


Figure 2. Changes in the Presence of Data Librarian, 2014-2019, among Institutions that Mentioned RDM as a Priority in Interviews or Did Not

our rubric notes section.

We gathered institutional data from December 2018 through April 2019. We used the methodology from Briney (p. 7, 2015a) to independently evaluate a sample set of five institutions as a norming action. We divided the remainder of the institutions into two groups and completed the rest independently. Following this we compared our results and evaluated them for inconsistencies.

### Data Librarian

In order to determine if the institutions had these positions, we relied on the university library's website, confirming through library staff directories and public profiles. In some cases, where website information was too inconclusive, or libraries showed evidence of previously having the position but no evidence of currently having the position filled, we reached out to personnel at several institutions to confirm whether there was still a data librarian position. We also counted situations in which there was no data librarian currently on staff, but the position was undergoing an active search, as a Yes. It was unclear what Briney did in a comparable situation.

### Data Services

We counted as data services such things as consultations, workshops, tutorials, and generalized guidance being actively provided by the library or librarians. A list of external resources by themselves were not enough to qualify as data services offered by

that library. We again relied for this information on publicly available information findable through the university library's website.

### Data in Institutional Repository

In the case of searching to see if the library supported data in its IR, we first found out if there was an IR for the university and then searched the IR's "About" page to see if they explicitly accepted data. When that was inconclusive, the actual submissions to the IR were reviewed to see if datasets were specifically being accepted to the IR.

### Data Repository

In the cases of data repositories, we reviewed the "Home" pages and "About" pages of data repositories to see if the repository was characterized as being exclusively or primarily for research data uploaded by researchers within the institutions.

### Data Policy

We chose to focus on the institutional services aspects of the previous study and declined to research the institutional or library data policy.

### Strategic Plans

Unlike the other terms in our rubric and key, which were derived from the Briney study, strategic plans were a focus of Saunders's research (2015). We specifically sought out strategic plans for university libraries, not the whole university. Any webpage or documents that were classified as strategic plans or strategic goals or equivalent, were

reviewed and searched for mentions of data management or research data services. A strategic plan was counted as the 2014-era if the scope of years spanned included 2014. Plans were counted for the 2019-era if they included that year in their date range or if the current strategic plan had no year specified. Those which referenced data management services were counted as Yes, those which did not were counted as Nos, as were libraries which did not have a strategic plan posted publicly.

### RUBRIC NOTES

We kept a key attached to the rubric for consistent definitions of each category. Both the key and the rubric were based on Briney's data (with the exception of strategic plans). We made our own modifications to the key for clarification when needed.

For instance, we changed the data librarian definition slightly so that in addition to the exact title "data librarian," the definition included all full-time positions supporting RDM in the libraries, regardless of whether the position included the title librarian, or whether it was faculty or staff (Federer, 2018). Federer's survey of data librarians and equivalent positions in North America demonstrated that there is great disparity in the job titles attached to such positions, with only two specific job titles out of 81 interviewees recurring more than once. In some regions, other emerging titles like data steward or data curator are also used. Multiple "data" positions that added up to a full-time equivalent position also counted. We excluded pure developers, librarians who are primarily subject specialists, or administrators. The key also defines the difference between a data repository and data in an institutional repository. Data repository is a dedicated data-only repository, while IR with data is an institutional repository that accepts publications and other scholarly output as well as explicitly accepting data.

### ANALYSIS/DISCUSSION

In order to analyze trends over time in the data, we assigned four classifications for changes in each field. A field was marked "No" if a library did not have the service in 2014 and still did not have it in 2019, "Lost" if the library offered something in 2014 but no longer offered it in 2019, "Kept" if they offered something in both 2014 and 2019, and "Gained" if they did not have something in 2014 but had it in 2019 (Table 1).

In situations where universities did have

data services or repositories, but they were not provided by the library (usually they were provided by a central IT unit) we coded it as Yes or Gained, on the grounds that the services were still being provided to the university community and the library was not “missing out” on an opportunity to provide the service; however, we rarely encountered this. Note that Briney (2015b) was more stringent in only counting services or data repositories offered by the library.

### Overall Trends

Between 2014 and 2019, the overall gains for libraries have outpaced the losses (see Figure 1) in all categories with the exception of data in institutional repositories.

There were no dramatic changes in the number of libraries that offer data services or that employ data librarians. The only category where there was a significant increase was in the number of AAU libraries that offered a data repository, which more than doubled between 2014 and 2019. Some libraries also experienced losses in at least one of the categories between 2014 and 2019, although only one of these categories, data in institutional repositories, experienced a net loss. As noted, this category is where most losses from 2014 to 2019 occurred. In all other categories, some losses occurred but were out-numbered by the gains at other libraries.

The institutions that mentioned RDM in interviews as a priority in Meier (2016) were grouped together and compared to those that did not specifically mention data as a strategic goal. Of the 60 libraries included in this study, Meier interviewed 44 of their deans or directors. Of those libraries, 15 mentioned data management as a priority in 2014, while 26 did not specifically mention any type of data services. These two sets were used in the analyses below to determine alignment of goals and action.

### Data Librarians

Most institutions, 34 (of 60), already had a data librarian in 2014 and retained their data librarian into 2019. Twelve institutions added a data librarian between 2014 and 2019. Six institutions lost a data librarian position between 2014 and 2019. Eight libraries did not have a data librarian in 2014 and still did not have one by 2019.

We then compared these numbers to which libraries stated in interviews that they considered RDM services a priority (see Figure 2). It is notable that 4 of the 15

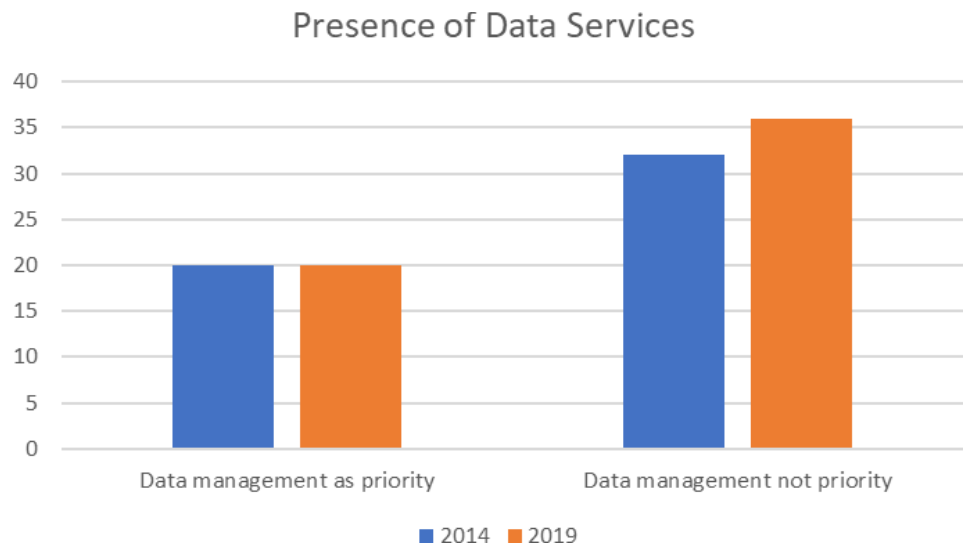


Figure 3. Changes in the Presence of Data Services, 2014-2019, among Institutions that Mentioned RDM as a Priority in Interviews or Did Not

libraries that mentioned RDM as a strategic priority in 2014 (Meier, 2016) now no longer have a dedicated data librarian. For example, Carnegie Mellon University has taken a few years to rethink the position after losing their research data services librarian to industry (M. Marsteller, personal communication, May 2, 2019). Drawing from this example, we speculate that the results may not indicate a lower priority for data management among this population, but rather indicate that libraries that said data management was a priority in 2014 are now changing their approach to research data support and rethinking data librarian positions. In 2014, 12 of those 15 libraries already had a data librarian, so there were few options for the number of data librarians to increase.

For those 26 libraries that did not specifically mention data services during the interviews, there were more gains to be made as 11 did not have data librarians (see Figure 2). Of these 11, a total of eight gained a data librarian position, which suggests data management became a goal over the past 5 years even though it was not mentioned in the interviews.

Many institutions have their own language for talking about the kinds of research data management services they provide and those who provide them. As a result, it can be difficult to tell through online research who in an institution is working to support RDM, how much of their time is dedicated to it, and if their responsibilities are primarily technical or service oriented.

Due to this variability, it can also be difficult to directly compare the positions

to each other except in situations where the job description is available online. As a result, there remain questions about the similarities between the positions or what else they may do as part of their job (such as liaison librarianship or other digital projects). In addition to RDM services, libraries also provide services pertaining to data such as statistical analysis, survey design and dataset acquisition that do not fall under our definition of RDM.

### Data Services

The category of Data Services was by far the most prevalent category of research data management services in these AAU libraries, both in 2014 (87%) and 2019 (93%) (see Figure 1). This is also growth from 2013 when 74% of respondents to the ARL SPEC Kit survey indicated they offered RDM services (Fearon, Jr. et al., 2013). While “data management” was identified as the most common name for these types of services in ARL universities and universities with high levels of research activity in 2017 (Yoon & Schultz), we found that “data services” was the most common term among our population. We also noted that some data services webpages proved surprisingly difficult to find, either due to idiosyncrasies in naming or due to being hosted in LibGuides without local links, but most were easily navigated to from the library’s main page, usually via a “Research” drop-down menu.

In our sample population, libraries were the predominant providers of research data services in a university. Even in the situations where the IT unit or other university units were the primary research data

## Data Allowed in Institutional Repository

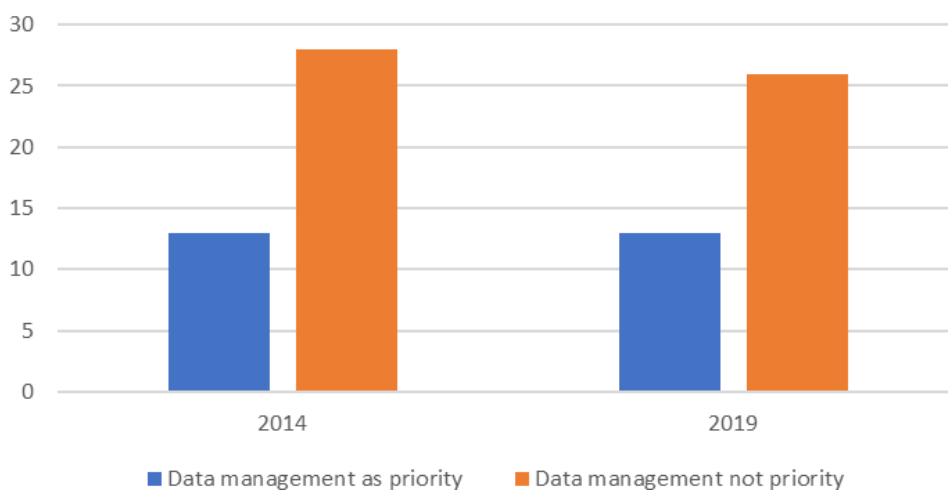


Figure 4. Changes in Allowing of Data in Institutional Repository, 2014-2019, among Institutions that Mentioned RDM as a Priority in Interviews or Did Not

services providers rather than the library, the library usually had a presence in the unit, usually in the form of a librarian or library staff serving in the unit. University of Wisconsin is an example of a robust interdisciplinary program that includes not just library employees but Department of IT and Department of Academic Technology staff (<http://researchdata.wisc.edu/>). There is also the UC system that has shared data services across multiple institutions with individual campuses having multiple staff and librarians, depending on their budget (<https://www.ucop.edu/information-technology-services/services/it-staff-services/data-services.html>).

We found that the amount and frequency of data services programming and workshops were one way to measure activity within the library related to RDM, and often seem to be correlated with having dedicated staff or having more staff overall. Another potential area of study would be to observe the extent of participation in these programs across the country.

All 15 of the libraries that mentioned RDM as a priority in the 2015 interviews (Meier, 2016) also provided data services in 2014 (Briney, 2016) and kept them into 2019 in our results (see Figure 3). For the 26 libraries that did not mention data management as a priority, only three did not have data services in 2014 (Briney, 2016) and two of those gained data services by 2019 (Figure 3).

### Institutional Repositories

The category of Data in Institutional Repositories was an outlier among our results, as the only category that experienced

an overall loss in the five years, with the percentage of libraries that allowed data in IRs going from 68% to 64%. Most likely, this represents not a step backward in data management services in the library, but the sign of an increasing number of libraries that adopted data repositories and thus no longer needed to allow data in their IRs.

In cases where we explored a library's IR, it could be hard to determine if an IR explicitly allowed data due to lack of documentation of data policies. Most IRs examined did not directly specify what formats are accepted. However, in many cases, we were able to locate datasets currently being stored in the IR even if datasets were not explicitly welcomed.

Those libraries that mentioned research data management as a priority in interviews showed almost no movement in this category between 2014 and 2019, with only one library that allowed data in institutional repository changing to one that did not, and only one library gaining it, for a total that did not change in the five years between studies (see Figure 4).

Libraries that did not mention RDM in interviews made up most of the losses that occurred, although it should be noted that these occurred overwhelmingly in libraries that gained a data repository between 2014 and 2019 (see Figure 5).

### Data Repositories

The number of data repositories grew substantially from 18% in 2014 to 35% in 2019 (see figure 5). An increase can also be seen from 2013 with 13% of ARL SPEC kit respondents with data repositories (Fearon, Jr. et al., 2013).

As noted, some of the losses in the category of data in institutional repositories is likely due to the addition of a data repository and new rules explicitly making clear the difference in what is allowed in a data repository versus an institutional repository. For example, the University of Texas at Austin changed to a yes for data repository and a no for data in institutional repository, which reflects the launch of The Texas Data Repository (TDR) (<https://legacy.lib.utexas.edu/about/news/libraries-launches-texas-data-repository-support-campus-research>). Other studies have found that some libraries create a data repository in parallel to an institutional repository and other research collections (Fallaw et al., 2016).

The 26 library deans and directors that specifically mentioned data management as a priority were more likely to have a data repository at their institution already (6 of 15, or 40%, compared to 5 of 26, or 19%). Possibly as a result of this difference, the libraries that did not mention research data management service experienced much larger gains in data repositories added by 2019, both in total numbers and as a percentage of the population (See Figure 5).

### Strategic Plans

While collecting data, we noticed some general trends within data services in the libraries we observed.

We noticed a downward shift in the percentage of strategic plans among AAU libraries that mention RDM as a priority between 2014 and 2019. While searching online, we were able to locate a 2014-era strategic plan for 34 of the 60 AAU libraries and a 2019 strategic plan for 56 of the 60 AAU libraries. In 2019, a smaller percentage of the strategic plans mentioned research data management specifically. In the strategic plans for 2014, 22 out of the 34 plans mentioned data management services (65%), as opposed to 26 out of the 50 strategic plans or goals for 2019 (43%). However, 43% is still higher than Saunders (2015) or Meier (2016) found in their respective research (roughly 40%). Also, it should be noted that our methodology of seeking out 2014-era strategic plans in 2019 may have biased the sampling toward PDFs of strategic plans, which stay online longer and tend to have a longer page length and cover more topics overall, which may have given us a higher percentage of plans that mention RDM than we would have found if we had conducted the research in 2014.

## Presence of Data Repository

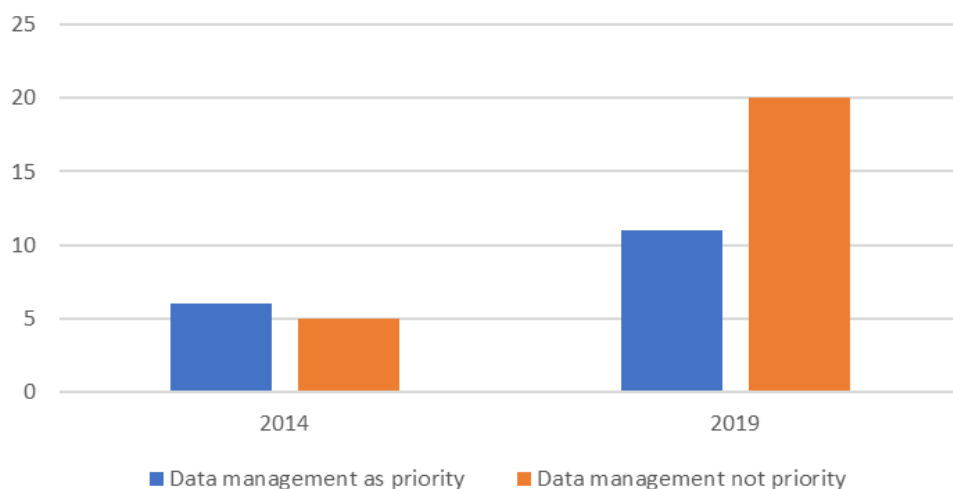


Figure 5. Changes in Presence of Data Repository, 2014-2019, among Institutions that Mentioned RDM as a Priority in Interviews or Did Not

One interesting trend we did notice is that as data services become a regular operation of the library, they are sometimes no longer identified as a strategic development area in strategic planning documents. For example, the University of Minnesota Libraries has been a leader in RDM services for many years yet does not mention them in their 2019 strategic plan. Strategic plans tend to focus on future development rather than maintaining past initiatives, so a nascent program such as Tulane University with few data services and no data librarian still mentions RDM in their 2019 plan. Roughly half of the 2014-era strategic plans that mention RDM no longer mention it in 2019-era strategic plans.

The libraries that have already achieved their 2014 goals for research data service and research data management planning have shifted their focus away from mentioning RDM in strategic plans, possibly because it's considered a goal that has been achieved. Some have shifted towards stated goals relating to data science, data visualization, and data curation, indicating a focus on more ambitious and sophisticated data service options.

This focus on data science was not observed in the earlier strategic plans and was only observed in a few of the 2019 plans. The possibility of focus shifting or expanding to data science should be observed as a potential future trend. We may be moving into a "post-RDM" future where libraries like the University of Arizona don't mention RDM services, but do say in their strategic plans that they intend to "establish strategic alliances with campus partners... to develop campus-level support for data science." University of California at Berkeley Library's strategic plan says, "As Berkeley pioneers break new ground in areas such as data science and digital humanities, the Library must facilitate collaborations and provide scholarly resources, tools and spaces." University of Illinois Urbana Champaign Library frames their goal for data services as one of growing what already exists into new areas: "expand research data services and accompanying education initiatives, focusing on data curation, use, and dissemination."

These services often require higher technical and specialty skills to support their activities, from more specialized staff. We assume that as initial goals are met, some libraries are pushing forward with higher level data goals, while others are maintaining services as is. Many of the emerging

collaborative efforts to make data findable and reproducible, such as the FAIR data principles or Open Science Framework, were not referenced in any plans.

### CONCLUSIONS

#### Broad Trends

Between 2014 and 2019, research data management support grew at university libraries in the AAU. However, there have been individual institutions that lost services in all categories, most notably in terms of losing a data librarian position where they once had one. It is not clear if this work has been absorbed into other roles. New staffing models involving campus IT, consortial efforts, or entire departments have emerged to support data services and repositories. Stated goals in library strategic plans or in interviews with library deans and directors in 2015 were not a good predictor of increases in data librarian positions or data services by 2019, and the most significant growth across all categories occurred among the libraries that had not identified research data management as a priority in 2015.

While there have been only modest overall increases in the variety and amount of research data services within the population, many institutions have shifted focus toward data repositories in addition to using institutional repositories for data. We found that over half of the libraries in this study now provide or partner with a data repository. While the library may not be the host of institutional repository (IR) or data repository platforms in every instance, librarians and library staff are frequently key partners in these programs.

Data services are almost ubiquitous in

AAU libraries with 93% of the population offering services for research data management, including consultations, workshops, and tutorials. These libraries may also offer services like survey design, statistical analysis, and dataset acquisition that touch many other stages of the research lifecycle.

Overall, the way our population of libraries frame data services as a key strategic goal has shifted, and there's been an overall decrease in the percentage of strategic statements that make mention of RDM. This may be an indication that research data services have become so core as to no longer need mention in library strategic plans. It also possibly reflects a change in the overall level of depth and detail in library strategic planning documents.

#### Limitations of the research

Our research was based on a binary "yes/no" approach to data librarianship and data services that did not track, for instance, whether there were multiple data librarians at an institution or just one, or the extent or variety of data services offered. These nuances are worth studying in more depth, perhaps through more interview-based exploration. As data services have become almost a given for libraries in major research institutions, future library science research will need to shift beyond whether libraries have these services, and instead explore the quantity and nature of services and staffing. There may be particular value in assessing the number of patrons who make use of these services and the programming supporting them. One potential model already in use in higher education for self-assessment of capability of research data services

is the RISE model, developed by the Data Curation Centre, which identifies 21 areas of research data support and asks libraries to assess them at three different levels of capabilities, from basic compliance to leadership (Maxwell, Norton, & Wu, 2018).

We also did not conduct a follow-up to the interviews conducted in 2014 with library deans and department heads. This might have given greater insight into how the administration prioritizes RDM services in their own words and would have given greater insight into how administration sees research data management fitting into the current library services landscape, in the absence of more detailed strategic plans.

### **Recommendations for libraries**

If libraries consider RDM services to be a core activity, they likely will benefit from ensuring that their Data Services page can be easily navigated to from the library's homepage, and that the page be easily discoverable through search engines. While this was true of many of the pages visited in the process of collecting data, a notable minority of pages were difficult to find, suggesting that user experience testing for users seeking RDM services information in the library might be worthwhile. It is also recommended for libraries to provide contact info for personnel users can reach out to for data services. Due to uncertainty about whether institutional repositories accept data, and norms varying between institutions, it should be noted on a library's institutional repository if datasets are accepted or not, and if not, where the data should be deposited. Librarians and other library researchers should lead by example in following good data management practices and ensuring that their research data has been made freely available in institutional repositories or other sources.

Data repositories are increasingly replacing institutional repositories as the home for research data. Yet library workflows still need to integrate the repository into research practice. We noticed that this is more common in institutions when interdepartmental collaboration within a university produces the data repository.

Data librarian positions have become widespread within academic libraries, and so have non-librarian specialists who perform many of the same functions. The lack of librarian status for these specialists should not be a barrier to their professional development in the position or their role in

the library. Professional support networks and organizations should be strengthened based on this.

AAU libraries in the 21st century have made significant strides in the widely stated goal to offer support in the research data life cycle. As RDM services move from an up-and-coming service being initiated in anticipation of researcher needs to a set of widely implemented services and staffing, library's attention seems to be shifting, as reflected in the changing focus of strategic plans. Libraries should put long-term support behind programs and positions in order ensure sustainable growth. Now is the time to assess whether the library is serving the desired role in the research data life cycle that led to the creation of these services and positions. There are also indications that libraries are looking ahead to the future of what lies beyond RDM services to supporting a fuller suite of data science services, and libraries may want to consider such an approach for their institution. ■

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# Communicating with Information

## » Creating Inclusive Learning Environments for Students with ASD

BY FREDERICK C. CAREY

### INTRODUCTION

Institutions of higher education not only offer students the academic freedom to cultivate intellectual interests and develop skills that they can hone into lifelong careers, but they also establish social and professional expectations that provide the foundations for sustained success. As such, students are expected to interact with social and professional networks both in person and virtually. However, studies show that perpetual connectivity through social media and other technological platforms contribute to increased cases of stress, anxiety, and depression.<sup>1</sup> Therefore, institutions of higher education support students' needs in these areas by offering mentoring, mental health, and transitional services to better equip students to successfully adapt and thrive within their new environments. The effectiveness of these services, however, are explicitly connected to the makeup of the student population they serve.

Currently, student populations across higher education continue to grow increasingly neurodiverse,<sup>2</sup> and as such, both social and academic services have been institutionalized to meet student needs. Institu-

tions provide supports for transitioning into new routines; navigating new social structures both in and outside of classroom settings; managing fatigue and sensory overload; treating anxiety, depression, and stress; as well as developing executive function (EF) skills related to planning, organizing, and prioritizing information; self-monitoring; self-regulating; and creating time management plans. These services are essential for acclimating to the social and professional structures of higher education and post-collegiate life, but do not provide all the tools neurodivergent students need to succeed in academia.

Autism Spectrum Disorder (ASD), one of the increasingly prevalent manifestations of neurodiversity within higher education, presents significant challenges to students interacting with academic resources and producing traditional scholarly outputs. Traditional scholarship presupposes that students possess a certain level of ability to interact with their course materials, analyze that interaction, and then write both about their interaction and analyses. However, limitations in working memory and Theory of Mind (ToM) create additional barriers for students with ASD in

meeting these presumptions. Fortunately, emerging scholarly practices within the digital humanities (DH) now provide more equitable mediums for scholastic output as well as new opportunities for students to access and interact with course content and materials. While current structures within academia presuppose that students are able to interact with materials in a specific way, libraries are uniquely positioned to collaborate with constituent departments and services across campuses of higher education to teach students emerging strategies to more effectively interact with scholarly materials. Therefore, the focus of this article is twofold: it 1) considers how digital humanities techniques and methodologies increase accessibility to course materials and scholarship opportunities for students with Autism Spectrum Disorder; and 2) outlines how libraries can collaborate with existing services to provide subsequently appropriate supports for students to more effectively interact with their course materials.

### AUTISM SPECTRUM DISORDER

The 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) characterizes ASD as a range of neurodevelopmental conditions that manifest through either deficiency in social interaction and



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communication across multiple contexts, or restricted, repetitive patterns of behavior, interests, or activities.<sup>3</sup> Since the publication of DSM-5 in 2013, ASD now “encompasses disorders previously referred to as early infantile autism, childhood autism, Kanner’s autism, high-functioning autism, atypical autism, pervasive developmental disorder not otherwise specified, childhood disintegrative disorder, and Asperger’s disorder.”<sup>4</sup> Subsequently, the challenges that those with ASD face can vary depending on the manifestation in each individual.

ASD continues to grow as one of the most common manifestations of neurodivergence both inside and outside of higher education. The Center for Disease Control and Prevention’s most recent statistics indicate that the overall prevalence of ASD is approximately 1 in 59 children over the age of 8 years old, or approximately 1.7% of the overall student population.<sup>5</sup> Despite the increased prevalence and understanding of ASD, graduation rates within higher education for students with ASD remain low. According to a 2011 report commissioned by the US Department of Education, 52% of students without any registered disability graduate from their respective programs, while only 39% of students with ASD graduate.<sup>6</sup> These statistics reveal a gap in equitable higher education opportunities for students with ASD.

This gap becomes even more apparent when considering the number of students who enter higher education without a formal ASD diagnosis or who choose not to disclose their diagnosis. In a study conducted by White et al. evaluating the prevalence of students with ASD on college campuses, none of the 5 participants who met ASD criteria from the 667 sample set had previously been diagnosed.<sup>7</sup> Furthermore, Underhill et al. discovered that many students

elect not to disclose their diagnosis out of fear of either becoming stigmatized by their instructors and peers or creating new social barriers for themselves.<sup>8</sup> Subsequently, these students do not receive many of their entitled supports, and it is likely that the true gap in graduation rates is larger than the statistics indicate.

Supports prioritizing immediate social, environmental, and executive function challenges are increasingly becoming routine procedure across institutions of higher education. In order to effectively establish equitable learning environments for students with ASD, however, it is imperative that support be given to students in navigating the inherent social and communicative components of scholarship, especially within disciplines that emphasize expository and persuasive writing. Acknowledging these fundamental characteristics of traditional scholarship and the added challenges that they create for students with ASD will positively contribute to establishing more inclusive, equitable learning environments.

#### **SOCIAL AND COMMUNICATIVE CHARACTERISTICS OF TRADITIONAL SCHOLARSHIP**

The social and communicative interactions inherent within traditional modes of scholarship create barriers for students with ASD. Despite oral communication barriers appearing more immediate than those created by written language due to observable extrinsic manifestations, the skills required to understand and interpret both modes of communication remain similar. In fact, the syntactical structure and language of the written word is often more complex than oral speech.<sup>9</sup> This can be especially true of the materials that students work with in higher education that, depending on the discipline, may incorporate high amounts

of technical writing, figurative language, or older systems of speech that are no longer used in contemporary language.

Language comprehension is established by forming inferences and hypotheses from the language used, the schemata in which it exists, and the context in which it was delivered. It presupposes an inherent understanding of the social constructs of language.<sup>10</sup> In order to accurately and effectively make inferences based on the schemata and structure of the communicated information, one must have mastered the social context in which the information exists and is delivered. Current social skills interventions offered through therapy treatments can assist those with ASD to interpret facial expressions, body language, and other markers to better navigate social interactions.<sup>11</sup> These strategies can be used to indicate when sarcasm, metaphor, or other nonliteral expressions of language may be changing the meaning of what is spoken.<sup>12</sup> However, students do not have the same markers that help recognize such constructs when reading. In speaking of figurative language, Vuchanova et al. state that “such expressions are characterized by interpretations which cannot be retrieved by simply knowing basic senses of constituent lexical item, and where the addressee needs to arrive at the intended meaning rather than what is being said.”<sup>13</sup> Therefore, while the skills required to understand oral and written language are similar, interpreting written language relies solely on the intrinsic social and communicative literacy of the reader, while oral language interpretation can benefit from extrinsic interventions.

Producing written language, however, proves even more challenging than interpreting it. In a study on effective writing interventions for students with ASD, Ac-



cardo et al. state that “writing has a social context, follows rules and conventions, and makes use of inferences and ambiguous meaning to convey humor and metaphor, all of which can be challenging to individuals with ASD.”<sup>14</sup> When reading, students only need to recognize the social context of what is presented, but when writing, they are expected to recreate that social context and use it to deliver their thoughts and findings. The skills needed to recognize social structures differ drastically from those needed to replicate these structures, and as such students with ASD face significant barriers in producing traditional scholarly outputs. Furthermore, the rules and conventions of writing differ depending on genre. In a 2020 study, Price et al. demonstrate that expository and persuasive writing prove more challenging than narrative writing for students with ASD.<sup>15</sup> Additionally, Walters’ 2015 case study into the experiences of two first year writing students with ASD states that one student “struggled to translate her passion for writing into the classroom because her ways of writing – particularly in her fan fiction communities – were not valued as social or socially meaningful in her course.”<sup>16</sup> Students in higher education are not only expected to write across genres, but also are often writing across academic disciplines that incorporate their own specific conventions. All of these challenges can be further understood by considering the roles of working memory and Theory of Mind in these processes.

### WORKING MEMORY

Working memory proves essential for communicating any thoughts, ideas, or connections as it dictates the amount of information an individual can efficiently process at any given time. Camos and Barrouillet describe it “as a kind of mental space, located in frontal lobes of the brain, corresponding to a quick-access memory able to hold temporary, transient plans for guiding behavior.”<sup>17</sup> It enables the multitasking functionality required when making connections, taking notes, and presenting information. Subsequently, students with ASD experience numerous challenges when interacting with their course materials due to limitations in their working

memory. Thoughts easily get lost while considering the syntactical components and structure of language when performing tasks such as reading and writing. Graham et al. point to spelling as one such challenge. They state that “students may forget plans and ideas they are trying to hold in working memory as they stop to think about how to spell a word.”<sup>18</sup> Similarly, thoughts and connections can be lost when attempting to parse the syntax and structure of complex writing, metaphors, figurative language, or other nonliteral structures. While executive function strategies, such as immediately writing down thoughts when you have them, are helpful techniques for overcoming such challenges, limitations in working memory present persistent obstacles for students with ASD.

### THEORY OF MIND

Theory of Mind (ToM) directly impacts how individuals recognize, empathize, and interact both with thoughts and emotions, and subsequently highlights many of the challenges that students with ASD face when interacting with their course materials. The role of ToM can be better understood by distinguishing between cognitive ToM and affective ToM. Pino et al. state that “cognitive ToM refers to the ability to make inferences about beliefs, intentions, motivations and thinking, whereas affective ToM is the ability to understand what people feel in specific emotional contexts such as their own emotional states.”<sup>19</sup> In order to effectively make inferences and connections through cognitive ToM, it is necessary to recognize and understand emotional states and undertones through affective ToM.

Scholarship, especially in the humanities, expects a high-level cognitive ToM, and subsequently, a strong foundation in affective ToM. However, the inherent social and communicative components of language and traditional scholarship create major barriers for students with ASD in establishing an affective ToM foundation. Limitations in working memory further exacerbate this loose foundation as students attempt to build upon it using the skills involved in cognitive ToM. Furthermore, studies demonstrate that students with ASD do

not develop ToM skills at the same rate as their peers. ToM development progresses in a specific sequence, and Broekhof et al. demonstrate that while students with ASD follow the same sequence as their peers, their developmental timeline is comparatively delayed.<sup>20</sup> In order to create equitable and inclusive learning environments in institutions of higher education, it is therefore essential that supports be implemented to assist students with ASD in overcoming these barriers and accessing course materials more effectively.

### EMERGING OPPORTUNITIES

Over the last few decades, research and the way it is conducted has developed just as rapidly as the technology available to researchers. In reflecting upon research developments during this era of technological growth, it is easy to think about the way that new (and not so new) tools have been adopted into the research process. The digital humanities, however, encapsulates much more than just tools and how they can be integrated into humanities research. DH represents the discovery of new methodologies for doing research, new ways of interacting with materials, and new manners for telling stories and disseminating knowledge. DH is not a replacement for the humanities; it enlarges the scope of what is possible within the humanities and how humanities research can be done. It increases accessibility not only to how materials can be analyzed and interrogated, but also to how information can be shared and communicated. It allows for a much more inclusive environment that invites new perspectives and collaborations across disciplines.

Not only do DH methodologies, techniques, and outputs grow the humanities, but they can also provide respite to many of the scholastic challenges that students with ASD face. These emerging scholarly practices create opportunities for people to access and interact with materials in ways that were previously not possible. Textual analysis techniques such as sentiment analyses and topic modeling can provide students with ASD opportunities to move beyond some of the challenges they face when interacting with course materials. Various forms of visualizations can provide alternative scholastic outputs for students instead of the more limiting traditional forms. DH practices can not only provide students with ASD the opportunity to interact with



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scholarly materials in a more unrestrained way, but they can also empower students to communicate their work and tell the stories they are interested in telling through a more unrestricted outlet.

Furthermore, libraries have emerged as the center of DH support in institutions of higher education. This is due in part to libraries serving the needs of all constituent departments as a neutral entity. More importantly, however, libraries are devoted to helping students develop information literacy skills. The Association of College & Research Libraries' (ACRL) Framework for Information Literacy in Higher Education (Framework) defines information literacy as "the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning."<sup>21</sup> The values of information literacy and DH methodologies and practices ideally dovetail to make libraries the natural support structure for DH projects.

#### **TEXTUAL ANALYSIS STRATEGIES**

McKee describes a textual analysis as "a methodology – a data-gathering process – for those researchers who want to understand the ways in which members of various cultures and subcultures make sense of who they are, and of how they fit into the world in which they live."<sup>22</sup> Traditionally, researchers conduct such analyses by interrogating, interacting, and interpreting texts through close readings that combine their individual perspectives, contextual awareness, and the structures of the texts undergoing analysis. However, through DH practices the scope of what can be analyzed and how things are analyzed continues to grow larger. Individual words

and the subsequent grammatical and syntactical structures in which they exist can now be analyzed as individual data points that allow increased accessibility to texts. Information hidden in the structure of the texts now can be mined, visualized, and interpreted. These practices do not replace traditional processes for gathering data from texts, instead they provide alternate access points for individuals to interact with the data, identify patterns and trends, and interpret the information presented. These alternative access points present students with ASD increased opportunity to interact with texts and bypass some of the social and communicative structures inherent within them.

Idioms, similes, metaphors, and other representations of figurative language all base their comparisons on an intuited set of shared characteristics. Glucksburg claims that one technique for grasping the abstract meaning of figurative language is categorization, which "involves finding the nearest available category that subsumes both X and Y."<sup>23</sup> As previously discussed, connecting abstract concepts provides a barrier for students with ASD and consumes a large amount of their working memory. Topic modeling is a textual analysis strategy that simplifies this process by clustering similarly used words together to help illuminate the syntactical structure and schemata of the text. This allows students to more easily recognize patterns based on how the words are used within the local context, and focus on the meaning of those patterns instead of struggling to establish the syntactical structure of the text. Students are able to establish labels for these word clusters based on those patterns and assign their own meanings and interpretations to the groupings. The structures created by topic modeling allow students to move beyond the social and communicative schemata

used to deliver the meaning, create a more solid affective ToM foundation, and maximize the amount of working memory available to interact with the meaning of a text through cognitive ToM skills.

Students can also perform a sentiment analysis on a text as a strategy for moving beyond literal language. Sentiment analyses, or opinion mining, allow students to perform emotion recognitions and polarity detections to establish words or phrases in a text that represent emotional meanings. Emotion recognitions can not only help solidify an affective ToM foundation within the context of any given text, but they can also alleviate some challenges posed by limitations in working memory by providing a non-abstract structure for students to recognize and assign more figurative and abstract concepts. Similarly, polarity detection creates a structure in which abstract ideas can be categorized by emotional relation and be used comparatively. Cambria states that polarity detection is "usually a binary classification task with outputs such as 'positive' versus 'negative,' 'thumbs up' versus 'thumbs down,' or 'like' versus 'dislike.'"<sup>24</sup> Such identification can be especially useful in comparing voices within a single text or comparing tone within larger corpora. Similarly to topic modeling, sentiment analyses maximize students' functional ability to employ cognitive ToM skills to interact with course materials beyond the meaning of the language within that set schemata.

Strategies such as these relate directly to two of the threshold concepts in ACRL's Framework: "Information has Value" and "Research as Inquiry". First, ACRL states, "Information possesses several dimensions of value, including as a commodity, as a means of education, as a means to influence, and as a means of negotiating and understanding the world."<sup>25</sup> When interrogating texts, there are several layers of informa-

tion and dimensions of value. Researchers can extract a plethora of information and insight conducting a close reading of a text. However, incorporating textual analysis strategies allows for different information and insight to be drawn from different layers of resources. These strategies increase the scope of what is possible when working with texts. Furthermore, ACRL adds that “research is iterative and depends upon asking increasingly complex or new questions whose answers in turn develop additional questions or lines of inquiry in any field.”<sup>26</sup> These strategies allow researchers to ask questions and embark down roads of inquiry that were not possible in the past. In helping students develop information literacy skills, librarians encourage the use of new research strategies to find new ways of interacting and interpreting information encased within materials.

### ALTERNATIVE OUTPUTS

Emerging DH methodologies not only allow for outputs, such as story mapping, geographic information system mapping, and social network analyses to be considered as alternatives to traditional forms of scholarship, but in some cases they necessitate it. As technological advancements grow and new methods of conducting research emerge, traditional forms of scholarship grow increasingly restrictive. Unilaterally relying on traditional scholarly outputs undermines the research process and places greater emphasis on individual outputs than on the research itself. Scholarly outputs are simply instruments used to communicate knowledge derived from the research process. To adhere to a singular, prescriptive output while more appropriate outputs exist for communicating specific information is not only counterintuitive, but also jeopardizes the impact of the research itself.

In leading the charge to develop student’s information literacy skills, libraries emerge as ideal advocates for promoting the implementation of increased scholarly outputs. ACRL’s Framework cites “Information Creation as a Process” as one of the threshold concepts of information literacy. In defining this frame, ACRL states, “Information in any format is produced to convey a message and is shared via a selected delivery method.”<sup>27</sup> It adds that “the iterative processes of researching, creating, revising, and disseminating information vary, and the resulting product reflects these

differences.”<sup>28</sup> In order to properly assist students in developing information literacy skills, it is therefore essential that librarians not only make students aware of alternative outputs, but that they also advocate to constituent departments on campuses of higher education to do the same. In order to create inclusive learning environments for students with ASD, the emphasis needs to be placed on the research process itself, not the output. Emphasizing traditional outputs highlights limitations beyond students’ control. In focusing emphasis on the research process, students will be empowered to direct their efforts to conducting research and developing strong foundational research strategies. It is imperative to encourage students to communicate their research through the medium that they perceive to be the appropriate output for their project or individual communication style.

### OPPORTUNITIES FOR LIBRARY SUPPORTS

Libraries provide an ideal infrastructure for supporting neurodivergent students to more effectively interact with scholarly materials. These supports need to take a more prominent role in conversations regarding the future of information literacy. As emerging scholarly practices continue to become an increasingly prominent part of research, it is important to consider the challenges that neurodivergent students face when interacting with materials, and consider new research techniques and methodologies as opportunities to create more accessible, inclusive learning environments. This endeavor is not only a cornerstone of information literacy, but a principal value of librarianship. In discussing the differences between data and information, Lanning asserts that information needs “some kind of context for their meaning to be discerned.”<sup>29</sup> As discussed, there are numerous layers to this context that create barriers for neurodivergent students to effectively interact with information due to the social and communicative aspects of the syntactical schemata in which it exists, limitations in working memory, and comparatively delayed ToM development. However, the unique role of libraries within institutions of higher education creates opportunities to teach emerging research techniques and strategies to students directly, collaborate with services across campus to create more holistic support networks, and work directly with constituent campus departments to establish inclusive learning environments.

### CAMPUS-WIDE COLLABORATIONS

In a study into establishing strategies for more effectively integrating student supports into their academics, Dadger et al. found that all strategies have the same two aims: “(a) to make student services and supports a natural part of students’ college experience and (b) to increase the quality of both support services and instruction.”<sup>30</sup> In order to effectively meet these goals with relation to supporting neurodivergent students and establishing a strong network of services, increased collaborations between librarians and disability services, academic mentors and coaches, and advising personnel are crucial. The challenges that neurodivergent students face are multifaceted and require a widespread system of supports that work harmoniously together. Dadger et al. found that the first step to creating such a network is to connect preexisting services.<sup>31</sup> Many established library services, especially one-on-one consultations with librarians, can prove beneficial to neurodivergent students, but students may not be aware that these services exist. Students who disclose their diagnoses and seek supports from campus are involved in at least some, if not all, of the aforementioned programs, so increased collaborations can increase visibility of preexisting library services.

Such collaborations would also invite the establishment of new supports. In a 2018 survey assessing which supports students with ASD found most helpful, Accardo et al. discovered that 91% of participants identified academic coaching as a preferred service, with one participant adding that coaching is a support that “isn’t contingent on somebody’s agenda for me.”<sup>32</sup> Academic coaching and mentoring provides increased agency to students, and librarians can positively contribute to furthering that development by providing services around interacting with course materials. If greater collaboration exists between librarians and mentors, then mentors will both be able to suggest to their students specific library services that benefit their individual goals and plans, as well as make suggestions to librarians for new services that they think would benefit their students. All of these collaborations can help students interact with their course materials by making library services more visible and encouraging increased communication between students and their full network of supports.

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#### **LIAISING WITH CONSTITUENT DEPARTMENTS**

As previously discussed, many neurodivergent students elect not to disclose their diagnoses and subsequently do not receive any of the services to which they are entitled. This makes it all the more important for liaison librarians to work closely with their constituent departments to establish inclusive environments and practices. Much of the outreach that liaison librarians do is already geared towards creating inclusive learning environments, but it is imperative that liaison librarians bring new research strategies both to their students and faculty to ensure continued growth in developing such practices and spaces. As conversations focused on neurodivergent inclusivity within information literacy continue, many new practices will emerge and liaison librarians will be the primary drivers of delivering these practices across campuses. For now, many of these practices within the humanities are emerging through DH engagement, so it is imperative that liaison librarians focus on cultivating DH understanding and acceptance within the culture of their constituent departments. Organizing workshops and presentations that incorporate DH practices relevant to departmental research interests, inviting constituent faculty to collaborate on a project incorporating emerging scholarly practices, and sharing digital projects are a few examples of efforts that may lead to increased opportunities to grow emerging practices in constituent departments. Many disciplines are still in the midst of establishing best practices for considering scholarship and outputs that fall outside the traditional scope, and as such, may be unsure as to how to appropriately encourage students to engage with such

practices. Moving forward, libraries will continue to play an integral role not only in supporting the creation of new information and scholarship, but also ensuring that best practices are created for using research innovation to create inclusive learning environments.

#### **TEACHING EMERGING RESEARCH TECHNIQUES**

The majority of students will engage with library-led information literacy opportunities through supplementary sessions within courses taught through constituent campus departments. While some courses may integrate these sessions at numerous points during a semester, it is common that students either only have the opportunity to participate in one session or are not presented with the opportunity at all. The focus of these content-oriented courses is not to develop information literacy skills for interacting with course materials, but instead is on extrapolating knowledge or ideas by interacting with the course material and then presenting this knowledge through a largely proscriptive medium. Their structures presuppose that students are able to interact with the materials in a specific way, and are not designed to teach students how to interact with the materials themselves. They may introduce new forms of materials and teach students how to use or incorporate those materials, but even within these situations the ability to interact with the information is assumed. While these courses may not be the appropriate place to teach students techniques or research methods that enable a deeper interaction with their texts, such a course is necessary.

The mission and values of librarianship make libraries the ideal home for such courses. Libraries are becoming the central support for emerging scholarly practices

and DH, and the devotion that librarians demonstrate to information literacy make them ideally suited not only to teach students how to interact with materials, but also how to present their work in nontraditional ways. Such courses can empower all students, but especially neurodivergent students, to not only take control of their own research endeavors but also to increase agency when participating in other courses. Despite most academic disciplines requiring some variation of a discipline-specific research and writing course, these courses are structured around traditional academic norms that do not provide neurodivergent students with the supports they need for effectively interacting with materials. If libraries begin offering courses that teach these supports, then neurodivergent students may face reduced barriers in their discipline-specific courses. More research into the effectiveness of such courses needs to be conducted, but indicators discussed in this article suggest that they have the potential to positively contribute to more inclusive learning environments.

#### **CONCLUSION**

Institutions of higher education are currently maneuvering shifts both in the neurological makeup of student populations and the composition of scholarship itself. As student populations continue to grow more neurodiverse, and DH practices establish themselves as research norms, libraries will play an important role in establishing more inclusive learning environments for students and faculty. Neurodivergent students face a plethora of additional challenges to their peers. While many of those challenges are already being supported through various services, there are no institutionalized supports that help students approach the social and communicative aspects of inter-

acting with information and their course materials. Limitations in working memory and ToM development combined with the social and communicative components inherent within the engagement with and production of traditional modes of scholarship significantly impact neurodivergent students' abilities to successfully maneuver collegiate expectations. However, libraries can play a decisive role in supporting these students and creating more inclusive learning environments. DH methodologies and practices challenge the limitations of traditional modes of scholarship and provide neurodivergent students an opportunity both to interact with and present information in ways that they were unable to in the past. Libraries can currently teach strategies for interacting with information by integrating into the ever-growing system of services campuses offer students. They can implement research strategy courses that specifically target the research needs of neurodivergent students and advocate for more inclusive practices to be implemented within constituent departments. Moving forward there is an increasing need for greater emphasis to be placed on supporting the information literacy needs of neurodivergent students. As institutions of higher education continue to grow more neurodiverse, it is the responsibility of libraries to create accessible means and strategies for students to effectively interact with and present information. ■

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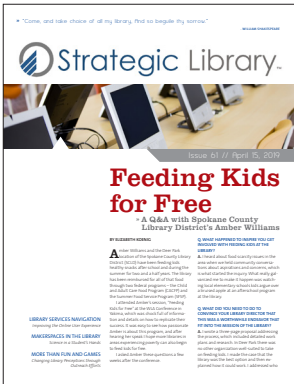
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**FOOTNOTES:**

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