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THEORY

Models for Engaging Liaisons in Research Data Services

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Research data services in academic libraries is often perceived as the purview of liaison librarians. A variety of models has emerged by which these services may be developed or implemented. These include hierarchical models and those based more on individual interest. Of critical importance with any model, however, is the identification of support and opportunities for engagement from library administration and management in order to grow and assess the implementation of research data services.

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IMPLICATIONS FOR PRACTICE

1. Identifying the interest and capacity of liaison librarians to participate in research data management will lead to greater potential success for introduction or expansion of services.
2. Ongoing holistic assessment allows for data management service models to evolve based on local needs, short and long-term goals, personnel, and funding.
3. Data management service models are likely to change over time to meet emerging institutional priorities and staffing practicalities.

INTRODUCTION

Research data services in academic libraries is frequently understood to include a subportion of the library staff who are managing the institutional data outputs of faculty members and graduate students and educating researchers and future researchers in best practices. There are many ways for liaison and subject librarians to engage in research data related activities—spanning from including data as a type of information to be cited during instruction to identifying a data resource for purchase as part of a comprehensive collection development strategy (Goben & Sapp Nelson, 2018). This variety of opportunities for engagement in research data services means nearly all academic librarians can play a role in the management of research data (Jaguszewski & Williams, 2013). However, a challenge frequently lies in the initial engagement of individuals who are busy with existing liaison duties into a seemingly overwhelming new task (Kenney, 2014).

While library liaisons are noted for following their intellectual curiosity to discover new interests, the assumption of wholly new roles is an arduous task that requires dedicated time, attention, and resources. It is often difficult for individual liaisons to carve out time to take on new roles and responsibilities in an already frenetic environment of change and heavy workload. Therefore what models for engaging liaison support should a library consider when proposing to implement research data services? Here we undertake an exploration of the models described in the literature by four large research universities as they have developed research data services over the past decade.

MODELS OF ENGAGEMENT

The models of engagement available for deploying library liaisons in research data management range in both resource allocation and up-front professional development time. Hierarchical models with an all-hands on deck liaison allocation that equally portion responsibility to all liaisons for a specified level of research data management services (while higher level services and policy making sit with specified positions within the hierarchy)

represent the most top-down approach that still engages all liaisons in research data management. Hierarchical models with triage based handoffs allocate responsibility for research data management in a scaled manner across the organization and rely on liaisons to know who to contact, rather than perform the research data management services themselves. In the middle of the spectrum of top-down versus liaison driven models, the "cross functional initiative" model has library administrators identifying liaisons from across the library with expertise in relevant skill sets and designating them as a team to provide research data services. This centralizes the research data management services within a few liaisons whose functional homes are distributed across the institution. Finally, the most liaison driven model is the community of practice model, in which individuals with self-identified professional or personal interest lead and participate in research data management services at their institution. Each of these models has strengths and weaknesses, and represents opportunities for library administration.

Purdue University: A Top-Down, Hierarchical Model with All Hands on Deck

As Kenney (2004) notes,

> Much liaison work can be labor intensive and viewed as an add-on to an already full plate. And most liaisons are responsible for supporting many faculty and students, precluding a lot of individual attention. The goal should be to move from one-offs to impacts at the department or disciplinary level. (p. 7)

In this model, directive leadership strategically seeks to identify tasks that are part of the liaison workload but that are not going to have broad or strategic impact, and eliminate them in favor of tasks that will impact at the department or disciplinary level. Directive leadership comes from the library administration and is predicated on the assumption that all or a majority of the liaisons will be engaged in research data services to some degree. This directive style is likely to come as part of a new strategic plan or initiative from within the library or as part of a larger campus initiative. This may result in updated job responsibilities which add data management as a specific duty and a potential realignment or reduction of other job responsibilities.

Directive leadership may also come with the hiring or development of a data librarian position or the creation of a data services department. With this realignment of resources comes a re-prioritization of time allocations and services that have a downstream effect for liaisons. Newly created data services may have a strategic directive which relies upon assistance from liaison librarians for marketing, integration, and implementation, though the specific data responsibilities may stay segregated to the new individual or department.

At Purdue University, the administration chose to implement a model wherein the Libraries as a whole were realigned to an administrative structure that was parallel to other academic departments on campus. Under this model, liaisons (who have faculty status) were asked to take on the role of a "blended librarian" through assuming research data type services while simultaneously ceasing to provide regularly scheduled in person or digital reference services (Carlson & Garritano, 2010). This "blended librarian" model refocused liaison time in the area of stated strategic importance (research data services) and at the departmental and disciplinary level (data consultations and collaborations). Reference was moved to a triage model, where trained staff members sit at the reference desk and monitor digital reference, and forward in-depth questions to the appropriate liaison for a scheduled consultation. The resulting model created a workload similar to the teaching and research load faculty in other disciplines around campus, providing a balance between teaching, research, and service (librarianship).

University of Michigan: A Hierarchical Style, with Triage Based Handoff

A similar model was developed at the University of Michigan, with all library liaison roles rewritten to include research data services, along with a core team of librarians with deeper expertise focused on curation, data management, and sharing (Coates et al., 2018). In this model, a working group was charged with providing professional development to all library staff ("in-reach to librarians") to establish a base understanding of research data services, with specific handoff strategies for more specific or advanced questions (Martin & Oehrli, 2015; Coates et al., 2018). Liaisons were assessed to determine if they "felt they were able to provide the services themselves ("do"), provide the service working alongside someone else ("collaborate"), or want to refer a service request to someone else ("refer")" (Coates et al., 2018, 13). By integrating this into all data descriptions and targeted training, all liaisons had explicit opportunities and administrative support for time spent to develop foundational understanding of data in their disciplines (Martin, 2016). By establishing a referral network, liaisons were demonstrably less obligated to develop expertise in any particular area of research data services for their discipline. This model follows recommendations for evolving and developing liaison roles as specific—rather than additional—responsibilities as well as the need for specific expert capabilities in areas such as data management. (Hahn, 2009; Jaguszewski & Williams, 2013; Johnson, 2018)

Iowa State University: A Committee Based in Interest/A Community of Practice

Another model for liaison engagement is the committee or community of practice driven model. In this model, an "all volunteer force" of individual liaisons who are interested in research data management organize to provide all research data services for the libraries at

the institution. In the case of this model, highly intrinsically motivated individuals attract or recruit others and use a model of strengths-based volunteerism (where individuals volunteer to participate in activities based upon their strengths) to build services and pilot new potential services.

This model serves as a familiar method of adopting or exploring implementation of new services at institutions before creating formal job changes for an individual or all of the liaisons. It also allows the library an opportunity to establish local practices and goals prior to hiring or creating a data services department.

This model requires a core group of a few liaisons to dedicate time across multiple initiatives and priorities. On one hand, it allows multiple people to develop skills, so that no one person is the lynch pin of the services. On the other hand, however, it also means that the services grow very slowly and gains are hard won. In nearly all cases, the services ultimately require full-time personnel in order to make substantial inroads in a large campus environment. In the case of Iowa State University Libraries, their committee were able to launch both a data repository and a data education program, but widespread outreach was hampered because of limited dedicated time to research data services. Ultimately three permanent positions were proposed for research data services to work in tandem with the community of practice to build toward a more robust research data services program (Brundy & O'Donnell, 2019).

Additional suggestions of how these committee and community of practice models might be organized were described by Raboin, Reznik-Zellen, & Salo (2013). All three focus on creation of a local group interested in supporting research data services: a collaboration between library and campus IT; a library driven working group as a subset of an inter-campus working group for a statewide system; and a targeted collaboration between the library and the college of arts, sciences, and engineering (2013). In each of these cases, a common thread of the need for institutional support beyond the library was identified as a requirement for sustainability and practical impact.

Adopting this model will still require administrative support for the individuals who express interest in participating so as to identify time for them to participate. Further, in order to prevent stagnation, opportunities for individuals to join or leave the committee when their obligations change will be necessary. Raboin, et al. note that while a committee may work for the short-term development of interest, expanded services will likely require additional staffing—either more liaisons to divide the subject work between or data service specific employees.

The committee to employee approach has been implemented at the University of Kansas (KU).

University of Kansas: A Hybrid of "Other Duties as Assigned"/ Committee called Cross Functional Initiatives (CFI)

When University of Kansas Libraries (KU) developed an innovative library structure that did away with a traditional liaison role in favor of specialist roles that focused on information literacy, collection development, or research, a key component of the new structure was a focus on "cross functional initiatives." As Ellis et al. (2014) note,

> A significant recommendation from [the Organizational Review Team] was to form cross-functional teams to address library functions and services related to both our core activities and our strategic priorities, especially those functions that affected or crossed organizational units. This team approach enables the Libraries to draw on the resources and expertise of units throughout the organization, provide additional opportunities for leadership, and provide a model that is flexible and agile, allowing teams to be reconfigured, formed, or disbanded as short- or long-term priorities evolve, and more quickly adjust to user needs or internal staffing changes.

Research data services was a cross-functional initiative (CFI) at KU. This model, as noted above, drew on expertise from around the Libraries, but did not necessarily require a top-down mode of leadership. However, in the case of KU, it was determined that having an expert to lead the CFI and to serve as a day-to-day point of service for the campus community was a valuable resource and a research data services librarian was also hired. The research data services librarian served as the coordinator for the CFI, but the members of the CFI collaborated on the creation and presentation of data literacy workshops and instruction, and data management services. This model ended in 2016, and research data services at KU transitioned to a different model, as detailed in the section titled "Model will Evolve" below.

"Wingman"

The wingman technique supplements the models described above to engage and education liaisons in research data services. This model assumes that at least one person in the local institution has expertise in research data services and has begun to outreach to researchers on the local campus.

It invites the collaboration of a colleague through participatory engagement in the learning process, whether through participation in meetings, research projects, or other active learning opportunities. The process allows the novice to engage in the topic under the guidance of the more experienced collaborator, while simultaneously allowing the novice to gain expertise in a more friendly situation. Examples of this may include inviting someone along to an interview with a researcher where they will be discussing their research data management as a notetaker, or identifying a subject matter expert to help develop a data information literacy curriculum for a specific discipline. Alternatively, a data management expert who is unfamiliar with a discipline may be invited as a novice to shadow meetings about the development of a grant in order to provide insight on the data lifecycle and important data management milestones.

This collaborative orientation into new knowledge can work in either direction, either towards disciplinary liaisons or toward research data services staff. It is particularly flexible in that it engages the natural curiosity of the individual and provides extrinsic motivation to learn new material while creating designated time to devote to learning the new content in a meaningful context. Provided that the expert in the situation was going to be attending the meeting/interview/training/research project anyway, it requires additional coordination time to invite the novice to the event, but otherwise doesn't require additional preparation. It can make the event more fruitful if additional background is given to the novice, either by pointing them to information about the individual they will be engaging with, or information about the research data problem they will be encountering. Treating the event as a learning experience can enrich the experience for both the host and the learner. The invitation can be structured as a formal learning experience, if both the host and the learner are aware of the opportunity.

One way to approach the opportunity may be to adapt Wiggins and McTighe (2005) backwards design approach to support the learning of the novice. Backwards design uses the following process:

- articulate learning goals,
- develop assessments,
- develop learning activities,
- perform activities and assessments,
- determine if learning goals have been met.

For instance, after identifying a meeting with a researcher as a likely learning event, and a specific learner to accompany, and confirming that the novice is able to attend the meeting,

the expert may then identify learning goals for the meeting based on their understanding of the intent of the meeting. If the intent of the meeting is the development of a plan for depositing data in the institutional data repository, then the goals may be that the novice will know basic questions to ask their faculty regarding depositing data within the data repository. Then, in preparation for the meeting, materials toward that goal may be sent to the novice, including the goals, background about the researcher, materials about the repository, and a brief handout with questions that have fill-in-the-blanks to be completed during the meeting.

During the meeting, the expert may also request that the novice play a specific role, perhaps note taker, because hand-written notes help to affix information in the short-term and then long-term memory. After the meeting, the expert and novice may then briefly meet and discuss what the novice learned about interacting with the researcher, what the novice recalled about helping researchers to get started depositing data in the repository, and clarifying any questions the novice may have had about the interaction. Finally, the expert may encourage the novice to set up a meeting on their own with a different researcher to discuss the deposit of data in the repository while the information is fresh in their head in order to practice the new knowledge and skills base they have developed. The expert may offer to go along as the wingman, this time as the notetaker, while allowing the novice to take the lead in the conversation, but there to provide backup as needed.

Other learning models exist, but using deliberate pedagogy to improve the research data knowledge and skills of liaisons in the limited time they have available is an impactful way of improving the general quality of their practice, as well as the level of research data services available on campus as a whole.

MODELS WILL EVOLVE

These models as described at the individual institutions will have changed over time due to staffing, new strategic priorities and opportunities, and recognition of what works best as their institution. One model may work in the present due to specific staffing or resourcing circumstances. However, due to changes to that staffing or resourcing, a different model on the list may become a preferred model. At Iowa State, a gap analysis has indicated that a switch from Community of Practice to Top Down Hierarchical may be warranted given the strategic campus situation (Brundy & O'Donnell, 2019). At University of Kansas, the structure has moved from an Other Duties as Assigned model to a Hierarchical model focused on a centralized Research Data Services unit that is focused on one individual. The Data CFI persisted as a "committee of interest" for another year after the reorganization (J. Brooks-Kieffer, personal communication, August 16, 2019). As noted by Kouper et al., a

slight majority of Association of Research Library institutions (52%) have chosen to have a solo dedicated librarian for data management services, suggesting the experience at Kansas to be common (2017).

BUILDING LIAISON ENGAGEMENT

When introducing a new responsibility or area for engagement, library leaders may encounter or anticipate unwillingness from the liaisons to adopt research data services. In order to be prepared for this, it is useful to consider whether liaisons have been provided with the necessary infrastructure and support and also are empowered to explore and pursue new activities. While there will be both internal and external factors driving an individual's choices, greater systemic issues are more likely to derail nascent service plans.

In order to build research data services, it is essential to provide explicit managerial and administrative support (Wright, Whitmire, Zilinski & Minor, 2014). Types of support may take a variety of formats: time to spend away from other responsibilities, money for education or other resources, inclusion in annual goals, and the active commitment of library leadership and management to these initiatives. Without these props, new research data activities run the risk of becoming relegated to optional activities to be undertaken only after all present obligations have been met.

For individuals, the commitment of library leadership and their ability to include research data services in their annual goals is crucial, as liaisons may not otherwise be permitted by direct supervisors to allocate time to new activities and it will be difficult to assess their progress in order to identify success or failure. At the scale of the full library, ongoing support will be necessary beyond single statements. In the six-month assessment of the ACRL Research Data Management Road Show, attendees noted that despite the one-time demonstration of financial support in bringing in the workshop as an educational opportunity, this singular show of support had not been followed up with time or other resources, which inhibited further engagement in research data services and long term sustainability (Sapp Nelson & Goben, 2018). When identifying goals for the research data services, it is critical to pair this with planned support and buy in from library administration and managers.

In addition to providing support, creating a wide variety of opportunities for liaisons to participate is crucial for building engagement for any initiative where the intent is long-range change of practice, such as when adding research data responsibilities. If only one individual is demonstrably given the opportunity to engage with research data services, by title or with the support of administration, this sets up territorial issues which can lead to conflict if someone else attempts to engage in research data services related to their liaison

responsibilities or if the supported individual attempts outreach in different subject areas without the partnership of the subject liaison. Additionally, centering research data services on one individual may lead to other liaisons abdicating any responsibility. In order to grow research data services successfully, liaisons will need various opportunities for them to engage over time that match their potential level of ability and support. For data management, the Data Engagement Opportunities Scaffold (Goben & Sapp Nelson, 2018) provides not only activity ideas that liaisons could undertake but demonstrates a wide variety of opportunities at various levels of engagement. Given a selection, liaisons have the chance to see themselves in a variety of activities and can integrate these data management tasks into their regular responsibilities or can begin to identify the types of knowledge or skill development they are interested in or need.

It can also be useful to consider an individual's interest in research data services and their specific willingness to adopt new tasks in order to build engagement, identifying where leadership needs to provide the appropriate opportunities and support.

Interest may be defined as someone's actual individual interest or curiosity in a topic. It can be an enthusiasm barometer and is likely to change over time as opportunities arise or needs evolve professionally. It may be difficult to tangibly measure beyond physical presence for something like the "As interested/committee." Library administrators are encouraged to not rely upon interest as the sole indicator of who will or should be involved in research data management, as it is likely to limit who participates and may create additional barriers for engagement, perceived favoritism, or obligation. To allow for and engage with a variety of levels of interest, those developing research data services should establish minimal levels of necessary engagement and prepare opportunities for individual liaisons to engage with data at more than one specific time point.

Willingness, in contrast, may be more related to an individual's ability to undertake this work, frequently evidenced by how much time they can commit. Though an individual liaison may not have any particular interest in data management, they may recognize its importance in the research lifecycle and be willing to learn foundational data sources for their disciplines, understand what data questions may look like, and be prepared to refer more complicated questions to data services staff. Willingness may be ongoing, sporadic, or only at a single time point. One liaison may be willing to partner on a workshop series, but only during the spring semester. Another may be willing to do a sprint on a particular project like developing a guide to data sources from the Library, but not to do ongoing instruction. Conversely, someone may be entirely unwilling to engage in research data services. Understanding why they are unwilling—whether from lack of interest/opportunity/support—is crucial to identifying whether this unwillingness may be overcome and lead to at least partial engagement (Goben, 2019).

If someone demonstrates interest or says that they are willing in any shape or form, it is critical to provide opportunities and support. A variety of opportunities, with an array of requirements in terms of time, prior research data knowledge, and mentoring, offer options for people with differing levels of interest to "see" themselves as valued members of the research data services enterprise. Further identifying the terms in which that individual is willing to serve in research data services, whether only in terms of education, or only as a wingman, or in a given time span, or by trading away other aspects of recurring duties in exchange for picking up research data services, opens the door to identifying the extent of the willingness of the liaison to serve in research data services, and also gives administrators insight into realistic allocations of time that the liaison is likely to give to research data services, at least for the foreseeable future.

Finally, while identifying where liaisons are on the spectrum of interest and willingness, and providing opportunities can create an environment for adoption of research data services, variance between individual should be expected and embraced on the part of management. Assessments should not be used to penalize those who show a cursory interest in research data services, but instead to identify those who are willing to devote time and energy into developing skills and interests at greater depth.

MODELS OF ASSESSMENT OF LIASION ENGAGEMENT

While assessing service impact is familiar to academic libraries, it is essential to also prepare for ongoing assessment for liaisons participating in research data management in order to help them further develop their skills. Assessing engagement is typically done as part of training but can be (and should be) designed into the implementation of the service model. Training-based assessments that have been reported tend to include assessments such as attendance; specific learning outcomes; proposed topics for future learning interventions; satisfaction with training sessions and satisfaction with the training program as a whole (Wittenberg, Sackmann, & Jaffe, 2018). However, assessments for a model of engaging liaisons within a structure should be considered within the larger workflow and organizational deliverable calendar.

Potential assessments may include:

- Reflections on research data interactions and skills that need to be developed. These reflections may appropriately be included during annual performance reviews or during monthly supervisory meetings.
- Peer review of research data skills. This may include informal or formal conversation or feedback on what liaisons have learned about the needs of their

liaison disciplines regarding research data services, following a rubric or script of questions

- Development of submitted deliverables that are evidence of interaction with research faculty (i.e. Data Curation Profiles)
- Counts and descriptions of consultations with students, faculty, or research labs on data management
- Participation in grant applications, whether as reviewers of Data Management Plans or as grant personnel serving a data curation role
- Integration within ongoing research projects as a research data services consultant or project personnel
- Participation in formal professional development on topics relevant to research data services
- Participation in 360-style assessment of the model being used to provide data management services, the services being offered, and their impact.

CONCLUSION

As research data services have been adopted broadly, academic libraries have engaged in several different models based on local need, funding, administrative support, and opportunities. At present, these models have not been formally or comparatively assessed, the latter of which would be difficult due to the high degree of variance between individual institutions. When adopting a model, library administrators will wish to consider their short- and long-term goals, the current structure of the library, the size of their institution, and their available personnel and funding resources. Further identifying the present interest and willingness of liaisons and establishing planned opportunities and long-term support will prepare the library for greater potential success. However, it is likely that there may be a period of trial and error and changing models as libraries determine the most functional workflow for integration of research data services for their liaisons.

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