



Recoding the Academic Librarian: Our Developing Role as Data Detectives

*Jenny McBurney and Alicia Kubas**

Introduction

Data reference is the art of locating and accessing secondary data and statistics. In our work as data librarians, we have found that questions about locating hard-to-find data, including international data, historical and time series data, and microdata, are on the rise. In addition to the librarian's challenge of merely finding this data, users often lack general data literacy skills when first asking their research questions. However, librarians are gaining expertise and finding strategies to overcome frustrations and learning curves. Many librarians realize too that they already possess skills that underscore this type of work. As Bordelon notes, “[d]ata reference is detective work, and many of the skills employed in traditional reference are applicable.”¹

To learn more about the landscape of secondary data reference and how librarians can better support researchers and users in this area, we developed a survey targeting library staff across different library settings and geographic locations who work with data-related questions. The survey focused on a variety of areas including the types of data questions received and from whom, how librarians tackle these questions, roadblocks they experience, and opportunities for increasing expertise in this area of librarianship.

In this paper, we examine behavior and differences between academic data librarians with varying types of job duties and levels of overall job responsibility and compare responses from academic and non-academic librarians. We particularly focus on patron demographics, frustrations and common themes related to patrons such as data literacy and unrealistic expectations, and strategies for approaching and improving data reference work and skills.

Literature Review

Within the field of data reference in libraries, often patrons' expectations around finding and locating data are unrealistic. Rice and Southall note the trade-offs that users have to make in settling for less-than-perfect data, which can occur for a variety of reasons, including that the user has not left enough time to find data or lacks data analysis proficiency, and that users are often completely unaware of these hurdles.² Kellam and Peter see this as another teaching opportunity for data librarians to “encourage users to rethink their questions simply because the data are not available on every subject for every geography in every time period desired.”³ Partlo describes similar issues when working with patrons on finding data but takes this a step further when discussing undergraduates.⁴ She explains that “undergraduates often simply are not doing the same thing as advanced researchers,” and data librarians should realize that their motivations and circumstances are different, but not necessarily less valid than an advanced researcher with superior data and statistical literacy skills.⁵

* *Jenny McBurney is Research Services Coordinator and Social Sciences Librarian, University of Minnesota Libraries, jmcburne@umn.edu; Alicia Kubas is Government Publications and Regional Depository Librarian, University of Minnesota Libraries, akubas@umn.edu.*

Faculty and instructors can further complicate the situation by only focusing on statistical analysis and software packages and not providing opportunities for students to learn how to find and assess data for analysis. Instructors often provide students with a pre-determined dataset that fulfills all the needs of the assignment, but fails to allow students a chance to learn about locating and evaluating data for analysis.⁶ According to Beauchamp and Murray, “students must make a cognitive leap from analyzing a dataset provided to them to identifying and locating an appropriate dataset to answer a research question of their own.”⁷

The literature emphasizes the librarian’s role in teaching statistical and data literacy when working with users to find and locate data. Beauchamp and Murray as well as Kellam and Peter point out that it is the librarian’s role to teach students to find data and improve their data literacy skills while doing data reference work.⁸ Librarians risk “leaving behind the data novices,” particularly undergraduates who often struggle when first faced with an assignment that requires data.⁹ Rice and Southall also note that working one-on-one provides an opportunity to gently improve patrons’ data literacy skills.¹⁰ Partlo is more specific in noting the areas in which students struggle, including geographic constraints, units of analysis, and the difference between data and statistics.¹¹

The literature also presents a number of suggestions from experienced data librarians on how to gain data skills or deal with challenging data reference questions. Many suggest asking colleagues for help, and specifically advocate for joining the IASSIST mailing list, which is well-known as a supportive community where librarians and other data professionals can share their questions.¹² Rice and Southall provide a list of additional people to look to for assistance: “immediate colleagues, peers at other institutions, government statistical agencies, data providers and publishers.”¹³ Kellam and Peter, based on their interviews of 19 data librarians from a variety of institutions in the US, Canada, the UK, and France, also recommend the ICPSR course on data librarianship and include the advice to “all new data librarians to be willing to say ‘I don’t know’” and take the time to do additional research in order to answer the patron’s question, even if it means getting back to them in a few days.¹⁴ Rice and Southall’s additional advice to new data librarians is that “[e]ven if you are unable to find the perfect source for your user, you can probably give them some useful starting points for their search, based on your knowledge of data sources, or that of your peers.”¹⁵ Bordelon offers a total of fifteen ways for subject specialist librarians to become more familiar with data reference in their areas, including starting with topics and journals that are familiar in the subject area, becoming familiar with data sources and holdings, and attending trainings and webinars.¹⁶

Methods

We started this research project by developing a survey that targeted library staff who answer data-related questions in their library environment. The survey was created in Qualtrics and was approved by the IRB at the University of Minnesota. We then sent the survey out in the fall of 2017 to various local, state, regional, national, and international listservs that we identified as the most likely to include our target audience of data librarians:

- IASSIST (International Association for Social Science Information Services & Technology)
- GOVDOC (library professionals working with government information)
- RUSA (American Librarian Association (ALA)-Reference & User Services Association)
- RSS (ALA-Reference Services Section)
- BRASS (ALA-Business Reference and Services Section)
- NMRT (ALA-New Members Round Table)
- ULS (Association of College & Research Libraries University Libraries Section)
- Minnesota Library Association (MLA)
- MLA Public Library Division

- MLA Academic and Research Libraries Division
- Lib-minndocs (Federal Depository Library Coordinators in MN, MI, and SD)
- Research and Learning division at the University of Minnesota-Twin Cities

In addition to the listservs, various individuals also circulated the survey via social media, so we cannot fully quantify its reach. The survey was opened to respondents beginning November 27, 2017 and closed on December 22, 2017. We sent a reminder email to each listserv at the halfway point in the open period.

There were 360 total respondents to the survey. However, we excluded responses in our analysis where the respondent did not answer past the demographics section. Similarly, we removed respondents who indicated that they did not answer at least one data question on average per month. This reduced the dataset to 278 responses. Of these 278 responses, we only considered those that we defined as academic librarians, which included those respondents who chose either university or college, community/technical college, or tribal college in response to a question about the type of library in which they worked. Thus, our final dataset for analysis consisted of 236 total responses.

Both quantitative and qualitative data were downloaded from Qualtrics and exported to a CSV file. Data clean-up and recoding were done in Google Sheets. The quantitative data was analyzed in SPSS using chi-square tests as all of our variables were nominal dichotomous variables. Questions that had a 'select all that apply' option were broken down into individual responses, and dichotomous variables were created from the absence or presence of the response. For example, question 23 had nine possible answers we considered for the analysis and therefore we created nine dichotomous variables out of that question. We set our p-value of statistical significance at 0.05 or less.

The qualitative data was coded into themes using consensus coding where we discussed individual qualitative responses and came to consensus on which codes to apply to each response. As we evaluated each response we also created new codes as necessary via consensus.

Findings & Discussion

Respondent Demographics

Of the 236 academic librarians surveyed, 86% (n=203) were from the United States, and 8% (n=20) were from Canada. Three respondents were from South Africa, and one each was from Slovenia, Switzerland, the United Kingdom, and Zimbabwe, while six did not answer this question. Within the United States, the greatest percentage, 44% (n=89), were from the Midwest census region, while 23% (n=47) were from the South, 20% (n=40) were from the Northeast, and 13% (n=27) were from the West.

Experience and Responsibilities

Among these academic librarians, the largest group, 27% (n=64), had worked in libraries for at least 25 years. Tied for the second-largest group at 19% (n=45) were respondents who had 5-9 or 10-14 years of experience in libraries. Next came the newest librarians with 0-4 years of experience, at 14% (n=33). Those with 15-19 years of experience made up 11% (n=27), and those with 20-24 years of experience made up 9% (n=22) of the responses.

There was a wide range of responsibilities and duties that academic librarians reported holding as part of their positions. Of the 236 respondents, 82% (n=193) do reference emails or consultations, 79% (n=187) do instruction, and 78% (n=183) are liaisons or subject specialists. Of those who specified they are functional specialists (49%, n=116), 47 additionally specified that data, data reference, or research data services were officially part of their duties (see Table 1).

TABLE 1
What Types of Duties Do Data Librarians Have?

	N respondents out of 236 possible respondents	% out of 236 possible respondents
Reference/Research emails & Consultations	193	82%
Instruction	187	79%
Liaison/Subject Specialist	183	78%
Reference/Information Desk	145	61%
Collection Development	154	65%
Functional Specialist	116	49%
Administration	32	14%
Acquisitions	28	12%
E-Resources	29	12%
Web Development	22	9%
Metadata & Cataloging	21	9%
Other	15	6%
Archives	9	4%

Frustrations and Roadblocks

In the survey we also asked about what frustrations or roadblocks data librarians experienced, and offered a list of check-all-that-apply answers as well as a space for respondents to write in their own frustrations and roadblocks. We then compared this data to other variables to identify relationships.

TABLE 2
What Are Your Biggest Frustrations or Roadblocks When Answering Data Questions?

	N respondents out of 236 possible respondents	% out of 236 possible respondents
Managing patron expectations around what data actually exists or its availability	206	87%
Lack of geographic coverage (other countries, local data, etc.)	113	48%
Data resources are hard to navigate	110	47%
Lack of time series and/or historical data (data from 1952, data from 1970s to present, etc.)	103	44%
Can't access data due to paywalls	89	38%
Data questions are time consuming	84	36%
Jargon or vocabulary related to the question or topic (not knowing what seasonally-adjusted data is, etc.)	79	33%
Don't know where to start looking	64	27%
Data not in an easily accessible format (in print, on CD-ROM, microfiche, etc.)	58	25%
Other	22	9%
N/A—I'm never frustrated with data questions!	6	3%

Patron Demographics and Data Literacy

We were also interested in learning more about the patrons with whom data librarians work. Respondents identified the patrons from whom they typically receive their questions. Undergraduate students, graduate students, and faculty members were all highly cited, at over 80% each, with the next-most questions received from community members at 64% and other librarians and colleagues at 40%. Only 5% of respondents reported working with K-12 students, and 6% selected “Other” types of patrons and listed either other types of researchers, organizations or government agencies, or those in a legal profession.

TABLE 3
From Whom Do You Receive Data Questions?

	N respondents out of 236 possible respondents	% out of 236 possible respondents
Undergraduate students	199	84%
Graduate students	196	83%
Faculty	193	82%
Community members	150	64%
Other librarians and colleagues	95	40%
Other	13	6%
K-12 students	12	5%

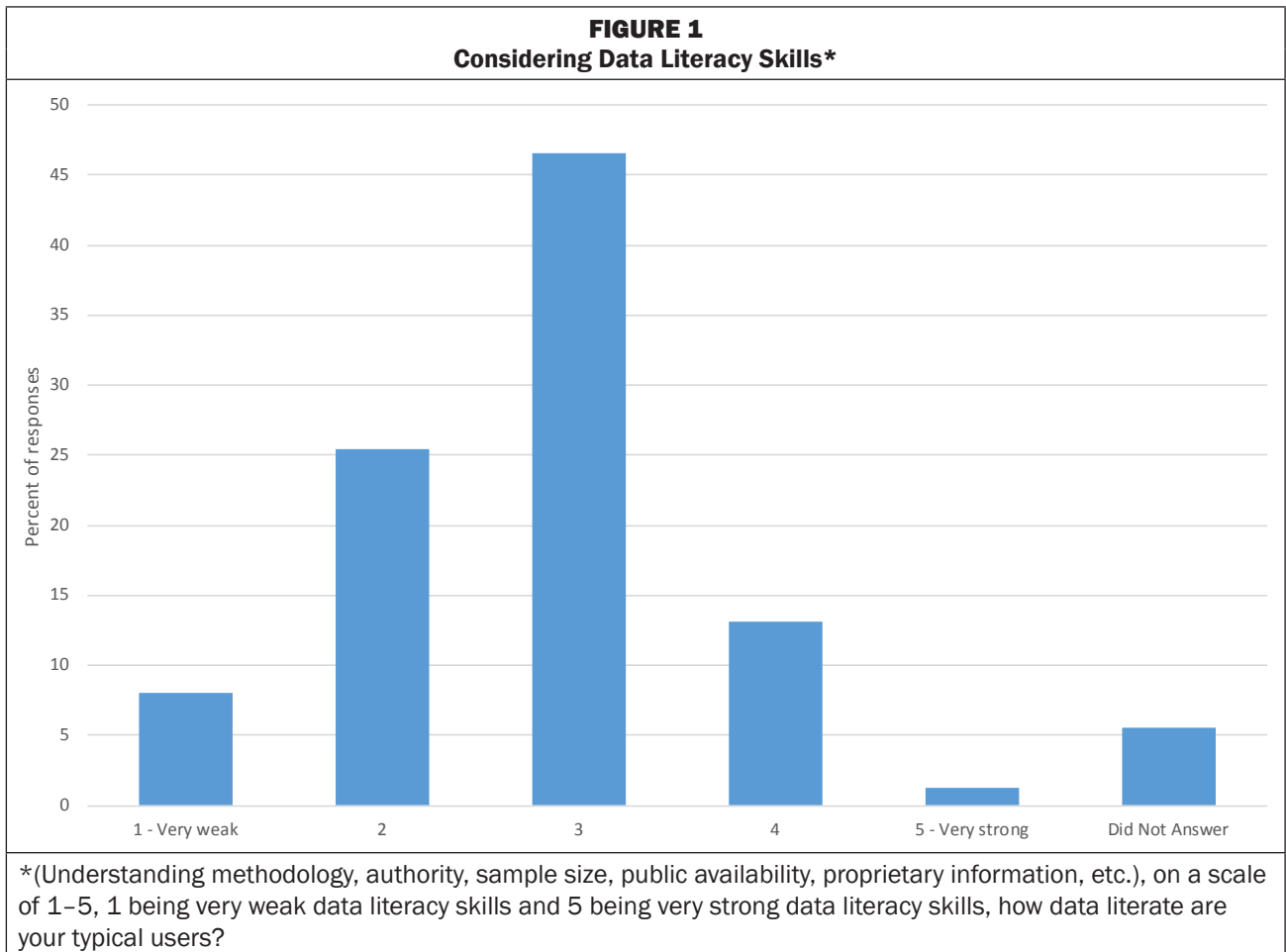
We compared patron type (Table 3) to the aforementioned frustrations (Table 2) to see what relationship might exist between the two variables. We found that academic librarians were more likely to report managing patron expectations as a frustration if they answered questions from patrons who were undergraduate students (chi-sq=43.678, df=1, p<0.001), graduate students (chi-sq=16.997, df=1, p<0.001), and faculty (chi-sq=23.295, df=1, p<0.001) than those who did not answer questions from each of those categories of patrons. Those who do not answer data questions from each of these patron types still report managing patron expectations as a frustration but it is at a much lower rate. In other words, it does not matter whether an academic librarian works with undergrads, graduate students, or faculty as they will still be frustrated by managing patron expectations. As cited in the literature, undergraduates are often called out as particularly frustrating to work with because they often do not have enough understanding of the process of locating and assessing data for analysis or inclusion in their assignments. However, our findings suggest that other academic patrons also inspire frustration around their expectations regardless of how advanced they are in their research and studies.

We also compared patron type to the frustration of lacking historical or time series data. Similar to the frustration of managing patron expectations, we found lacking historical and time series data is a frustration across many patron types—in fact, this frustration was significant for all patron types excluding K-12: community members (chi-sq=8.376, df=1, p=0.004), undergraduates (chi-sq=10.906, df=1, p=0.001), graduates (chi-sq=5.104, df=1, p=0.024), faculty (chi-sq=6.975, df=1, p=0.008), and other librarians and colleagues (chi-sq=6.517, df=1, p=0.011). Even though the literature suggests that the availability and accessibility of time series data is vastly improving with the facilitation of the Internet, this is still an issue that may have roots in patron expectations around the ease of availability or patrons’ lack of understanding of data collection and methodology of data collected over time.¹⁷

The final frustration we examined in relation to patron type was that data questions are time-consuming. In this case we found that there were no significant differences based on patron type. This finding solidifies the

idea that this work is always going to be frustratingly time-consuming for data librarians regardless of the type of patron they are helping. In general, this sheds light on the vast amount of time and effort that goes into data reference work.

We also asked respondents about their patrons' data literacy skills (see Figure 1), with over 30% of respondents stating that their patrons' data literacy skills trended toward the weaker end of the spectrum, choosing either very weak or weak skill levels. Almost 50% of librarians perceived their patrons to be of middling skill level, and 14% said their patrons had either strong or very strong data literacy skills.



Unrealistic Patron Expectations

Unrealistic patron expectations are a continual frustration for academic data librarians, and in their free-response text many respondents discussed various layers of patron interactions where these situations emerged. One respondent even indicated that “user expectations are probably the biggest roadblocks” in their data reference work. Often patrons misunderstand how difficult and time-consuming it is to find data and therefore have the misconception that they will be able to have the perfect dataset in hand after only a few minutes of searching and consultation. Consequently, users—particularly students—do not leave enough time to locate data for an upcoming assignment and become frustrated and impatient. This leads the librarian to also become frustrated because it is now up to her to locate the data with little time in which to find it, as evidenced by our survey data which showed that academic librarians are more likely to report data questions as time-consuming than non-

academic librarians ($\chi^2=7.394$, $df=1$, $p=0.007$). Furthermore, we found no statistically significant difference between the amount of time spent on questions for early career academic librarian respondents and those who were more experienced, meaning that data questions do not become less time-consuming even as academic librarians gain experience and years in the field.

Librarians also reported that their patrons become frustrated when they believe that a certain dataset or statistic should exist or be possible to find when in actuality the data does not exist, and sometimes, as one respondent pointed out, “it doesn’t make sense that it would exist.” There is also frustration on the librarian’s side as our survey data shows that academic librarians are more likely to report the frustration of managing patron expectations around what data actually exists or is available than non-academic librarians ($\chi^2=19.565$, $df=1$, $p<0.001$). Furthermore, another respondent noted that it is “almost impossible to determine [data] does not exist, whereas users want that certainty.” Many respondents emphasized the importance of the reference interview to mitigate these misunderstandings and help the patron broaden, narrow, or augment their research question when they take data availability into consideration. As one respondent noted, “It is possible that the data they are asking for is not the best way to make their point and more readily accessible data will work just as well or better.” Ultimately, unrealistic patron expectations provide an opening for instruction on data literacy from academic data librarians, which is also what the literature suggests as a main role for librarians doing data reference work.

In addition, academic librarians indicated that patrons often do not take into account their own inexperience around finding, using, and analyzing data. Patrons use generic, broad terms when outlining the data they need and display a lack of knowledge in how data is collected and aggregated. One respondent provided “middle class” and “technology industry” as examples of these broad, vague terms. Because of their lack of knowledge, they expect to find one perfect dataset to fulfill their data need rather than realizing that likely they will have to merge separate datasets or use the same survey data but grapple with the fact that the questions have changed over time. Academic librarians noted that what often exacerbates this issue is that faculty instructors lead their students to believe that certain data does exist and that it should be easy to locate and use when in reality the data either does not exist at all or is not in the perfect format, or it exists within a cost prohibitive subscription resource. Another reason respondents pointed out was that data can be sensitive and not publically available at a detailed level and might not even make sense to be available. Additionally, respondents stated that students may lack the technical skills to work with particular datasets that are either too large and unwieldy for a novice or do not export into an easily usable format or tool. Overall, the literature supports this finding, particularly calling out undergraduates as lacking data literacy skills and knowledge, but this issue seems to proliferate among a variety of patron types.

Strategies for Answering Data Questions

Throughout the survey there were opportunities for respondents to provide strategies, tips, or techniques for answering data questions. We asked these questions both for our own education and development in the area of data reference, and to share these answers more widely with other data librarians. There were many excellent suggestions provided, as well as others like us who indicated that they were also in need of new techniques, with responses like “wish I had some tricks” and “I don’t have any, give me some!”

Numerous respondents recommend using or starting with government data sources or .gov Google searches and others also listed aggregator resources such as Data Planet, ICPSR, or ProQuest Statistical Abstracts as recommended sources. On the other hand, a handful of respondents also listed print materials as viable resources when looking for data. One person even listed the Wayback Machine (<https://archive.org/web/>) as a way to access older statistics.

One particular theme that emerged was to go back to the source of the data or to “ask yourself ‘who would collect this/be interested in this’” as one respondent suggested. This strategy could include consulting the organization’s website or published material or even contacting or visiting the agency itself. Another way to go about this strategy is to use secondary literature published on the topic to identify sources of data. One caveat some respondents noted for this technique is that many published papers have poor citations to their data sources such as specifying the agency but not the particular survey or dataset from which the data was pulled. This issue is also noted in the literature; Rice and Southall state that until recently, data citation practice has been very lax, with tables cited as vaguely as “OECD, 2013,” and that this practice should be considered unacceptable.¹⁸

A number of respondents also suggested a variety of ways to get help through consulting others. Suggestions included internal and external colleagues, vendors, organizations that collect data, professional or trade associations, government agencies, and authors and researchers who have published on the topic of interest. Many respondents also suggested listservs such as IASSIST or BUSLIB as helpful places to learn from or to ask questions of others. Numerous respondents emphasized that data librarians should not be afraid to ask others for help. One respondent explained how helpful this can be:

Honestly, my best strategy is to consult with colleagues: the more brains, the better. I dig around, learn whatever I can, and then go to a colleague in a related area, show them what I’ve found so far, and see how much further they can build on my work or think in new directions that I didn’t consider.

In addition to directly contacting colleagues or others with questions, respondents frequently suggested consulting libguides and related resource pages such as government information websites or data guides, whether your own or another institution’s, as a starting point. A number of respondents also had their own personal in-depth lists of resources as bookmarks or in a spreadsheet, and recommended keeping this list backed up. Library staff field data questions that span subject areas and one strategy for navigating this is to consult colleagues, libguides, or to do quick background research to learn the basics of a topic. One respondent mentioned consulting materials from trainings and other professional development opportunities.

With all of this said, others noted how hard it is to distill down to one strategy, technique, or resource because often each data question or case can be very different. They said that even for one question you may have to go to multiple sources or resources. Overall, the plethora of strategies and tips provided by respondents illustrates the depth of work required to do data reference work and underscores why data librarians also can become quite frustrated by this work. Regardless, the community of data librarians seems to be supportive and willing to help others expand their data skills and knowledge.

Conclusion

As data reference becomes an increasingly important aspect of academic librarianship, data librarians and subject specialists are looking for ways to increase their skills and provide strong data services to their patrons. Our survey of academic librarians who answer data questions reveals current trends in this area, including the wide range of responsibilities that data librarians have in addition to answering data reference questions, frustrations and roadblocks they face in this work, challenges with patron data literacy and expectations, and strategies for answering tough data questions.

These findings are limited in ways that may affect the results. Although we shared the survey across a number of listservs, we were limited in which listservs we had access to and knowledge of, and this resulted in a ma-

jority of participants from the Midwest region of the United States. There may be other types of librarians who answer data questions but were not included in the listservs we selected.

Our survey left us with a wealth of data about academic librarians who answer data questions that could not possibly fit into this one ACRL paper. We hope to focus on other aspects of their answers in future papers, including a look into the personal and institutional limitations to their success.

Acknowledgements

We thank Andrew Kubas for his critical role in advising on data analysis and methodology and running analyses in SPSS. We also thank Carl McBurney for his feedback and critique.

Appendix A. Survey Questionnaire

Answering Secondary Data Questions in a Library Setting

Welcome!

The goal of this survey is to collect information from librarians and library staff who assist users in locating secondary datasets and statistics. We hope to collect data that is rich enough to inform how this growing area of librarianship is changing and how librarians can support researchers in finding secondary data.

This research study is being conducted by Alicia Kubas and Jenny McBurney at the University of Minnesota Libraries. It should take less than 10 minutes to complete.

If you have questions about the survey, please contact Alicia Kubas (akubas@umn.edu).

Your participation is completely voluntary. All individual responses will be confidential, and you can stop taking the survey at any time. Continuing the survey indicates that you consent to participate. This study has received IRB exemption from the University of Minnesota.

Demographics

At what kind of library do you work?

- University or College (1)
- Public (2)
- Community/Technical College (3)
- Tribal College (4)
- State (5)
- Law (6)
- Special (7)
- Other (Please describe) (8) _____

Where is your library located?

▼ United States of America (187) ... Zimbabwe (1357)

Display This Question: If List of Countries = United States of America:

In which census region of the US is your library located?

- United States—West (1)
- United States—Midwest (2)
- United States—South (3)
- United States—Northeast (4)

Display This Question: If List of Countries = United States of America

Are you a Federal Depository Library Program Coordinator?

- Yes (1)
- No (2)

Which duties are part of your position? [check all that apply]

- Liaison/Subject Specialist (1)
- Functional Specialist (data services, government info, copyright, etc.)—Please Specify: (2) _____
- Reference/Information Desk (3)
- Reference/Research Emails & Consultations (4)

- Administration (5)
- Instruction (6)
- Archives (7)
- Collection Development (8)
- Metadata & Cataloging (9)
- Acquisitions (10)
- E-Resources (11)
- Web Development (12)
- Other (Please describe) (13) _____

How long have you been working in libraries?

- 0-4 years (1)
- 5-9 years (2)
- 10-14 years (3)
- 15-19 years (4)
- 20-24 years (5)
- 25+ years (6)

Data Questions

For this part of the survey, we are asking about how you answer data-related questions. In this context, ‘data’ refers to existing datasets, statistics, and data points that users are trying to find, access, or cite. We are NOT referring to data collection, management, curation, or analysis.

On average, how many data questions do you receive per month?

- 0 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 5 (7)
- 6 (8)
- 7 (9)
- 8 (10)
- 9 (11)
- 10+ (12)

Skip To: End of Survey If On average, how many data questions do you receive per month? = 0

On average, how much time do you spend on each question?

- Less than half an hour (1)
- Half an hour to an hour (2)
- Between 1-2 hours (3)
- More than 2 hours (4)

What kinds of data questions do you receive? [check all that apply in the 4 categories below]

Geography: [check all that apply]

- Local or state related (1)
- Regional (e.g. Midwest) (2)
- National (3)
- International (4)
- Other (please describe) (5) _____

Time: [check all that apply]

- Historical Data (1)
- Current Data (2)
- Time-Series (e.g. a 20-year span of the same data over time) (3)

Miscellaneous: [check all that apply]

- Microdata (1)
- Spatial Data (2)
- Study Data—data already collected for research that is now available for reuse (3)
- Other (please describe) (4) _____

Topical Areas: [check all that apply]

- Business/Economics (1)
- Agriculture (2)
- Politics (3)
- Education (4)
- Tourism/Culture (5)
- Health (6)
- Demographic (7)
- Environment (8)
- Psychology (9)
- Science (10)
- Weather (11)
- Astronomy (12)
- Other (please describe) (13) _____

What are your strategies for answering these data questions? [check all that apply]

- Google it to get background information (1)
- Consult reference tools like Wikipedia or free or subscription encyclopedias (2)
- Ask the patron follow-up questions/Reference interview (3)
- Use personal knowledge of sources (4)
- Consult research guides (5)
- Consult with colleagues at your institution (6)
- Consult with colleagues outside of your institution (listserv, call or email, etc.) (7)
- Citation pearl growing (using a citation or other piece of information to find additional information) (8)
- Other (please describe) (9) _____

What types of resources do you use to find data? [check all that apply]

- Library subscription databases (1)
- Freely available databases (2)
- Government websites/portals (3)

- Data repositories (ICPSR, etc.) (4)
- NGOs or intergovernmental organizations (UN, EU, WorldBank, etc.) (5)
- Analog data (data in physical form such as print, cassette, CD-ROM, etc.) (6)
- Other (please describe) (7) _____

How successful are you at finding the data for which you are looking?

- Always find it (1)
- Usually find it (2)
- Occasionally find it (3)
- Rarely find it (4)
- Never find it (5)

Do you teach data literacy topics (e.g. methodology, authority, sample size, public availability, proprietary information, etc.)? [check all that apply]

- Yes; as part of a college course (1)
- Yes; as part of a graduate course (2)
- Yes; as part of a college or university freestanding workshop (3)
- Yes; as part of a non-college/university freestanding workshop (at a public library or special library, etc.) (4)
- Yes; for your colleagues (5)
- Yes; created tutorials or learning objects (6)
- No (7)

How do you stay current on developing your personal knowledge of data sources? [check all that apply]

- Conferences (1)
- Webinars (2)
- Blogs or websites (3)
- Scholarly publications (4)
- Other (please describe) (5) _____

Demographics of Patrons

From whom do you receive data questions? [check all that apply]

- Community members (1)
- K-12 students (2)
- Undergraduate students (3)
- Graduate students (4)
- Faculty (5)
- Other librarians and colleagues (6)
- Other (please describe) (7) _____

Considering data literacy skills (e.g. understanding methodology, authority, sample size, public availability, proprietary information, etc.), on a scale of 1–5, 1 being very weak data literacy skills and 5 being very strong data literacy skills, how data literate are your typical users?

- 1 (Very weak) (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (Very strong) (5)

Challenges and Opportunities

What are your biggest frustrations or roadblocks when answering data questions? [check all that apply]

- Don't know where to start looking (1)
- Can't access data due to paywalls (2)
- Data resources are hard to navigate (3)
- Jargon or vocabulary related to the question or topic (not knowing what seasonally-adjusted data is, etc.) (4)
- Managing patron expectations around what data actually exists or its availability (5)
- Lack of geographic coverage (other countries, local data, etc.) (6)
- Lack of time series and/or historical data (data from 1952, data from 1970s to present, etc.) (7)
- Data not in an easily accessible format (in print, on CD-ROM, microfiche, etc.) (8)
- Data questions are time consuming (9)
- N/A—I'm never frustrated with data questions! (10)
- Other (you will be able to describe in the next question) (11)

What other frustrations or roadblocks do you experience when answering data questions?

What tips, tricks, or strategies for answering tough data questions do you have to share with other library staff?

What data source do you use most often?

Endnotes

1. Bobray Bordelon, "Data Reference: Strategies for Subject Librarians," in *Databrarianship: The Academic Data Librarian in Theory and Practice*, eds. Lynda Kellam and Kristi Thompson (Chicago: Association for College and Research Libraries, 2016), 36.
2. Robin Rice and John Southall, *The Data Librarian's Handbook* (London: Facet Publishing, 2016), 41.
3. Lynda Kellam and Katharin Peter, *Numeric Data Services and Sources for the General Reference Librarian* (Oxford: Chandos Publishing, 2011), 157.
4. Kristin Partlo, "The Pedagogical Data Reference Interview," *IASSIST Quarterly* 33, no. 4 (Winter/Spring 2010): 6-10, https://iassist-data.org/sites/default/files/iqvol334_341partlo.pdf.
5. Partlo, "Pedagogical," 8.
6. Adam Beauchamp and Christine Murray, "Teaching Foundational Data Skills in the Library," in *Databrarianship: The Academic Data Librarian in Theory and Practice*, eds. Lynda Kellam and Kristi Thompson (Chicago: Association for College and Research Libraries, 2016), 81-92; Kellam and Peter, "Numeric Data."
7. Beauchamp and Murray, "Teaching," 82.
8. Beauchamp and Murray, "Teaching"; Kellam and Peter, "Numeric Data."
9. Beauchamp and Murray, "Teaching," 87.
10. Rice and Southall, "Data Librarian's Handbook," 43.
11. Partlo, "Pedagogical," 7-8.
12. Rice and Southall, "Data Librarian's Handbook"; Kellam and Peter, "Numeric Data"; Bordelon, "Data Reference."
13. Rice and Southall, "Data Librarian's Handbook," 43.
14. Kellam and Peter, "Numeric Data," 157.
15. Rice and Southall, "Data Librarian's Handbook," 43.
16. Bordelon, "Data Reference."
17. Amy West, "Sources for International Trade, Prices, Production, and Consumption" *IASSIST Quarterly* 33, no. 4 (Winter/Spring 2010): 6-10, https://iassistdata.org/sites/default/files/iqvol334_341west.pdf.
18. Rice and Southall, "Data Librarian's Handbook."