4-11-2019

Data Services: Where're We Going? Where've We Been? Where're the Lifeboats?

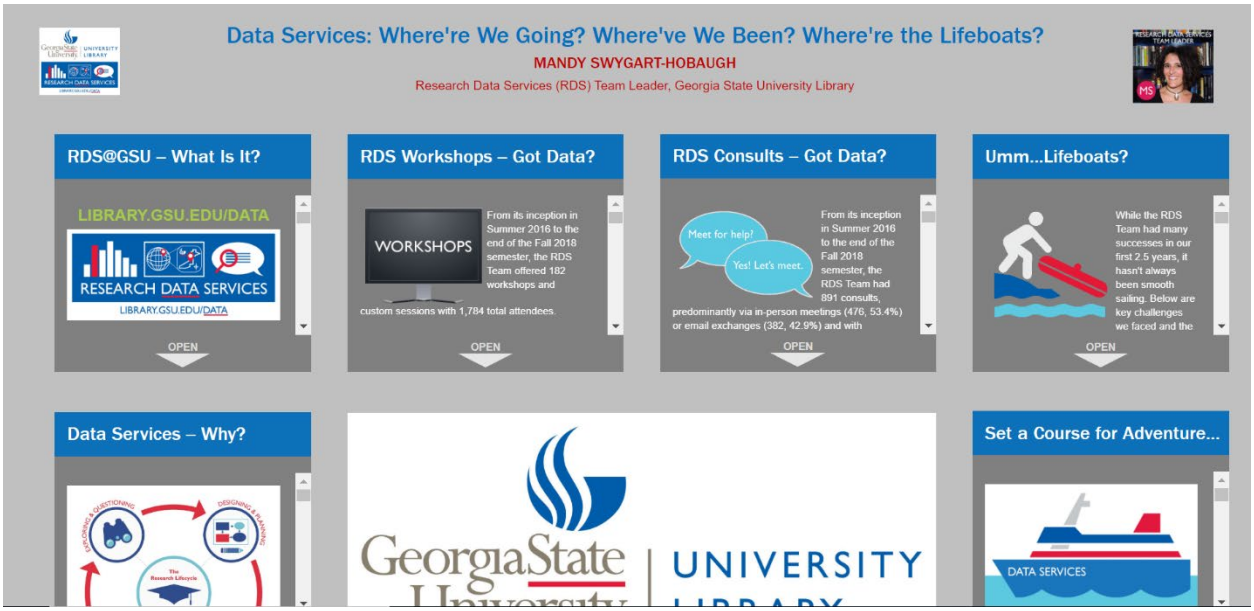
Mandy J. Swygart-Hobaugh M.L.S., Ph.D.
Georgia State University, aswygarthobaugh@gsu.edu

Data Services: Where're We Going? Where've We Been? Where're the Lifeboats?

MANDY SWYGART-HOBAUGH

Research Data Services (RDS) Team Leader, Georgia State University Library

iPoster presented at the Association of College & Research Libraries (ACRL) Conference, Cleveland, OH. The iPoster will be available online through April 2020 at this link; the associated content is available in this PDF.



Abstract

Libraries are increasingly venturing into the uncharted waters of Data Services support, likely with a mix of excitement and trepidation. Come learn about one library's forays into 'the deep' of Data Services. We'll explore where we have been (examining 2.5 years of data collected on our provided services) and where we are going (using this examination to inform our future services), and share revelations regarding the demands of researchers tossed about in the sea of their data needs. See how one library's voyage might chart a course to navigate the expanding horizons of Data Services in your library and beyond!

Data Services – Why?

The Georgia State University (GSU) Library has identified as a strategic intention the development of library services for all levels of campus researchers (undergraduate, graduate, staff, and faculty) across the entire research lifecycle.

Academic libraries are well known for supporting the **EXPLORING & QUESTIONING** phase of the research lifecycle (e.g., aiding undergraduates, graduate students, and faculty in finding secondary resources for research papers/literature reviews).

In terms of research data services, many academic libraries have made forays into supporting researchers in the **SHARING & DOCUMENTING** phase, particularly in helping faculty write and fulfill data management plans for their funding proposals that enable sharing of their data for replication and reuse.

However, the Georgia State University Library recognized an increasing need on campus for support during the middle phases of the research lifecycle. In our model of the research lifecycle, these middle phases involve researchers:

DESIGNING & PLANNING their original research project (e.g., finding existing or collecting original data, exploring and learning data analysis tools).

ANALYZING & CREATING their data and research outputs (e.g., cleaning up messy data, performing data analysis, creating data visualizations).

There has been a gap in support in these phases at Georgia State University, and the University Library developed our articulated research data services and our dedicated Research Data Services (RDS) Team in July 2016 to fill this gap.

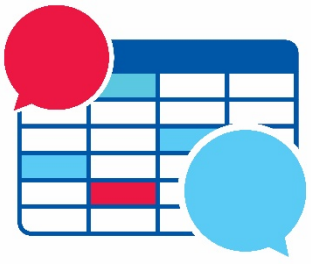
RDS@GSU – What Is It?

LIBRARY.GSU.EDU/DATA

The Research Data Services (RDS) Team offers support to GSU students, faculty, and staff in the areas of data analysis tools & methods, survey design, mapping & data visualization, finding data & statistics, and data management.

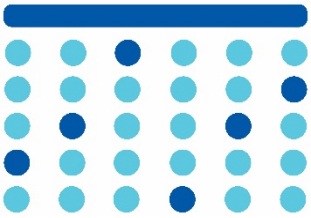
The RDS Team offers:

- One-on-one help via scheduled consults or via Drop In! hours
- Workshops on various data analysis and visualization tools and methods.
- Custom sessions for GSU courses and research teams.



DATA ANALYSIS TOOLS & METHODS

Arguably the most unique services for an academic library to provide, the RDS Team offers support for various quantitative/statistical and qualitative analysis tools (SPSS; SAS; Stata; Mplus; NVivo) as well as quantitative/statistical and qualitative methods. The majority of support in this area is offered by our Quantitative Data Specialist -- a new position filled in Summer 2018 that was created in response to pressing needs uncovered in our first two years of existence.



SURVEY DESIGN

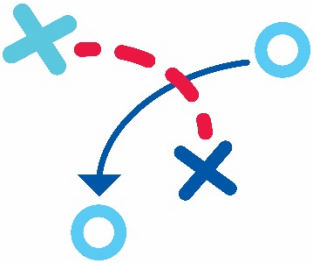
Prior to the addition of the Quantitative Data Specialist, this support area primarily consisted of technical assistance with creating surveys in the Qualtrics platform, or helping researchers find existing surveys/measurements to use for their own research purposes. The addition of our Quantitative Data Specialist -- who has extensive training and experience in survey design and implementation -- allowed us to expand support in this area to encompass all facets of survey design and implementation.

MAPPING & DATA VISUALIZATION

Similar to many libraries, the RDS Team offers support for GIS/mapping and other data visualization tools, such as Tableau data visualization software.

FINDING DATA & STATISTICS

As is also a typical of many libraries, the RDS Team assists campus researchers with finding existing compiled statistics or raw data for original analysis.



DATA MANAGEMENT

The RDS Team offers campus researchers assistance with data management and writing data management plans (DMPs) for grant proposals -- including consults on cleaning, organizing, and sharing the data in the working phases of the project as well as preparing it for long-term preservation and access.

RDS Workshops – Got Data?

From its inception in Summer 2016 to the end of the Fall 2018 semester, the RDS Team offered 182 workshops and custom sessions with 1,784 total attendees.

OPEN WORKSHOPS

"Open" RDS workshops may be attended by any GSU affiliate as well as non-GSU persons and are capped at a maximum 25 attendees per workshop. Our open workshops fall into the following broader areas:

- Data Analysis Tools (Quantitative & Qualitative)
- Data Analysis Methods (Quantitative & Qualitative)
- Data Visualization & Mapping
- Finding Data

We offered 122 open workshops with 858 total attendees between Summer 2016 and Fall 2018 (see table below).

RDS Open Workshops by Topic, Summer 2016 - Fall 2018

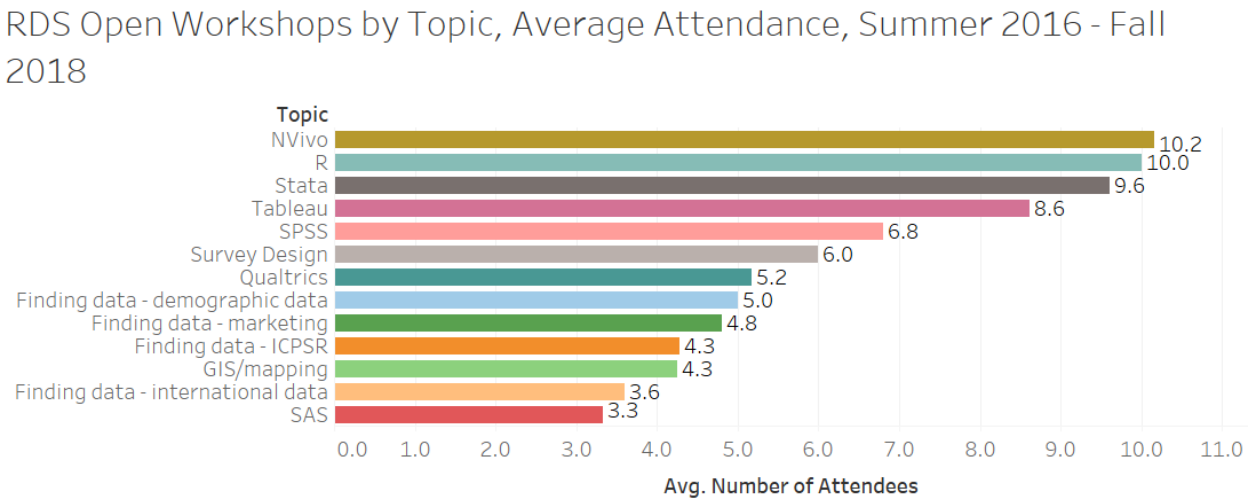
Session type	Topic	Attendees	Number of Sessions
workshop	NVivo	315	31
	SPSS	136	20
	Tableau	112	13
	GIS/mapping	85	20
	Stata	48	5
	Qualtrics	31	6
	Finding data - ICPSR	30	7
	Survey Design	24	4
	Finding data - marketing	24	5
	R	20	2
	Finding data - international data	18	5
	SAS	10	3
	Finding data - demographic data	5	1
Grand Total		**858**	**122**

NOTE: Above figure generated using Tableau data visualization software.

The difference in number of workshop offerings across topics reflects a combination of the following:

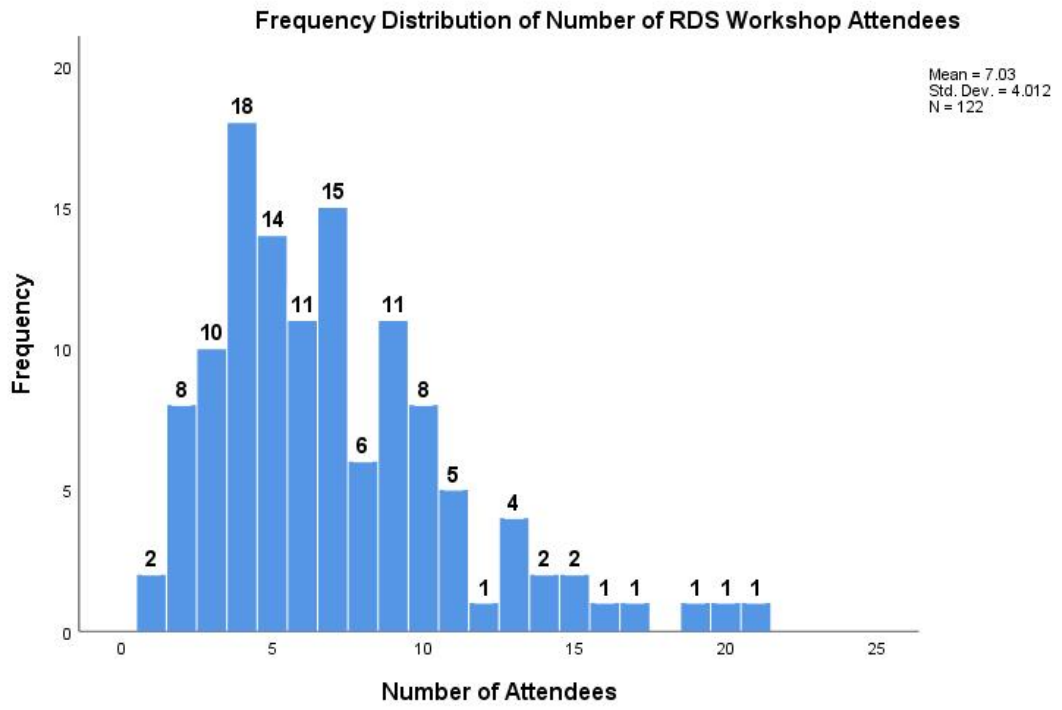
1. The RDS Team has been building its capacity to offer workshops in more areas -- e.g., we expanded into offering SPSS workshops in Summer 2017 and Stata workshops in Fall 2018.
2. We determine the number of workshop offerings based on demand -- e.g., our registration and attendance data suggest that there is highest demand for analysis tool workshops (NVivo, SPSS, Stata), so we generally offer those more frequently.
3. Topics have fluctuated with turnover in RDS Team membership -- e.g., the member who taught SAS in our first year left for another position, we had a graduate research assistant one year who did R workshops, etc.

We had an overall average of 7.03 attendees at our workshops, with average attendance varying by workshop topic (see chart below).



NOTE: Above figure generated using Tableau data visualization software.

Number of attendees at individual workshops varied considerably, with a maximum attendance of 21 at an NVivo workshop and two workshops having only one person in attendance (see chart below).



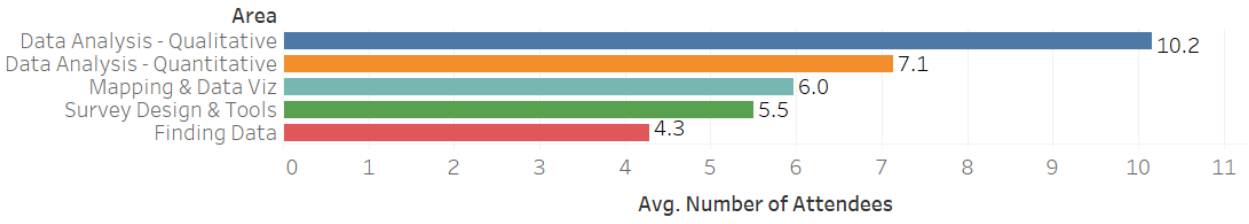
NOTE: Above figure generated using SPSS statistical analysis software.

When grouped by broader RDS areas, our attendance data alludes to a higher demand for workshops on qualitative data analysis, followed by those on quantitative data analysis, mapping/data visualization, survey design & tools, and, lastly, finding existing data sources (see table and chart below).

RDS Open Workshops by RDS Area, Summer 2016 - Fall 2018

Session type	Area	Attendees	Number of Sessions
workshop	Data Analysis - Qualitative	315	31
	Data Analysis - Quantitative	214	30
	Mapping & Data Viz	197	33
	Finding Data	77	18
	Survey Design & Tools	55	10
Grand Total		**858**	**122**

RDS Open Workshops by RDS Area, Average Attendance, Summer 2016 - Fall 2018



NOTE: Above figures generated using Tableau data visualization software.

Tests were performed using SPSS statistical analysis software to gauge whether there were statistically significant differences in average/mean attendance between the RDS area types, finding the following:

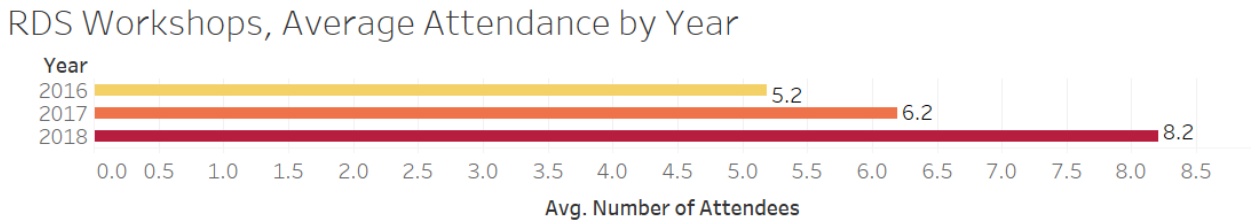
ANOVA test results:

1. There was a statistically significant difference between the mean attendance at the qualitative data analysis workshops and all of the other workshops, with the qualitative data analysis workshops having comparatively higher average attendance.
2. There was a statistically significant difference between the mean attendance at the quantitative data analysis workshops and those on finding existing data sources, with the quantitative data analysis workshops having comparatively higher average attendance.
3. All other differences between mean attendance by RDS area type were not statistically significant.

[*Welch's F* (4, 48.57) = 9.36, $p < .001$, Games-Howell post hoc test]

Interpreting that the qualitative/NVivo data analysis workshops are under more 'demand' than other workshops may be a premature conclusion to draw at this juncture. Their comparative popularity possibly could be attributed to their being the longest running of our RDS workshop series: they were offered first in Fall 2013, three full years preceding the official RDS Team formation and other associated workshop offerings.

The average attendance at open workshops increased in small increments from year 2016 to 2017 to 2018 (see chart below).



NOTE: Above figure generated using Tableau data visualization software.

Tests were performed using SPSS to gauge whether there were statistically significant differences in average/mean attendance between these three years, finding the following:

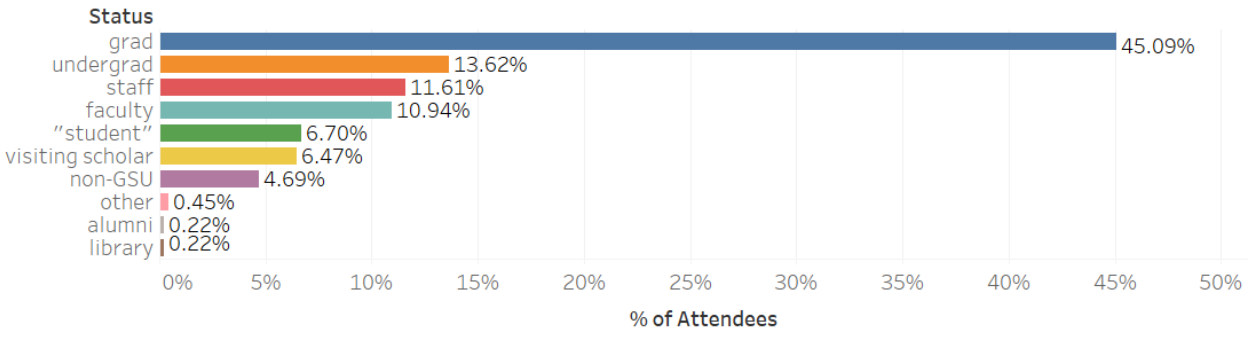
ANOVA test results:

1. There was not a statistically significant difference between the mean attendance in 2016 and 2017.
2. There was a statistically significant difference between the mean attendance in 2016 and 2018 and between 2017 and 2018, with the 2018 workshops having comparatively higher average attendance.

[*Welch's F* (2, 42.24) = 5.19, $p < .01$, Games-Howell post hoc test]

In Spring 2018 we began collecting information from attendees when they signed in at the open workshops about their status (faculty, graduate student, undergraduate, etc.) and their academic department/discipline. Students represented at least 65% of our 448 open workshop attendees in 2018, with graduate students dominating attendance (see chart below).

RDS Open Workshop Attendees by Reported Status, Spring 2018 - Fall 2018



NOTE: (1) Some attendees wrote "student" on the sign-in sheet rather than distinguish between undergraduate or graduate; (2) Above figure generated using Tableau data visualization software.

When parsed by academic area and RDS area, we get an insightful glimpse into not only the overall demand for our open workshops across academic areas but also the dispersion across methodological interests within academic areas (see tables below).

RDS Open Workshop Attendees by RDS Area and Academic Area, Spring 2018 - Fall 2018

	Data Analysis - Qual.	Data Analysis - Quant.	Finding Data	Mapping & Data Viz	Survey Design & Tools	Grand Total
Education	29	16		5	3	53
Public Health	12	18	2	10	5	47
Policy Studies	14	10	3	9	2	38
Sociology	18	9	2	2		31
Economics	6	18		4	1	29
Business	3	8	4	8		23
Administrative Office	6	4	1	10		21
Computer Science	2	9	1	8		20
Psychology	9	6		2	1	18
Library	4	4	3	2	5	18
Nursing/Health Prof.	6	1	3	1		11
Math & Statistics		9	1	1		11
Global Studies	8		1			9
Biology	3	3		1	2	9
History			1	7		8
Criminal Justice	3	5				8
Social Work	2	2		3		7
Communication	3	4				7
Political Science	4	2				6
Kinesiology & Health		4	1			5
Gerontology	3	2				5
Geography		3		2		5
Chemistry		2		2		4
Applied Linguistics	2			2		4
Urban Studies	3					3
English	2		1			3
College of Law	1	2				3
Neuroscience			1	1		2
African-Amer. Studies		2				2
Physics				1		1
Neurophysics		1				1
Film/Media/Theater				1		1
Asian Studies		1				1
Grand Total	143	145	25	82	19	414

RDS Open Workshop Attendees by RDS Area and Academic Area (Row Percentages), Spring 2018 - Fall 2018

	Data Analysis - Qual.	Data Analysis - Quant.	Finding Data	Mapping & Data Viz	Survey Design & Tools
Education	54.72%	30.19%		9.43%	5.66%
Public Health	25.53%	38.30%	4.26%	21.28%	10.64%
Policy Studies	36.84%	26.32%	7.89%	23.68%	5.26%
Sociology	58.06%	29.03%	6.45%	6.45%	
Economics	20.69%	62.07%		13.79%	3.45%
Business	13.04%	34.78%	17.39%	34.78%	
Administrative Office	28.57%	19.05%	4.76%	47.62%	
Computer Science	10.00%	45.00%	5.00%	40.00%	
Psychology	50.00%	33.33%		11.11%	5.56%
Library	22.22%	22.22%	16.67%	11.11%	27.78%
Nursing/Health Prof.	54.55%	9.09%	27.27%	9.09%	
Math & Statistics		81.82%	9.09%	9.09%	
Global Studies	88.89%		11.11%		
Biology	33.33%	33.33%		11.11%	22.22%
History			12.50%	87.50%	
Criminal Justice	37.50%	62.50%			
Social Work	28.57%	28.57%		42.86%	
Communication	42.86%	57.14%			
Political Science	66.67%	33.33%			
Kinesiology & Health		80.00%	20.00%		
Gerontology	60.00%	40.00%			
Geography		60.00%		40.00%	
Chemistry		50.00%		50.00%	
Applied Linguistics	50.00%			50.00%	
Urban Studies	100.00%				
English	66.67%		33.33%		
College of Law	33.33%	66.67%			
Neuroscience			50.00%	50.00%	
African-Amer. Studies		100.00%			
Physics				100.00%	
Neurophysics		100.00%			
Film/Media/Theater				100.00%	
Asian Studies		100.00%			
Grand Total	**34.54%**	**35.02%**	**6.04%**	**19.81%**	**4.59%**

NOTE: Above figures generated using Tableau data visualization software.

COURSE-BASED WORKSHOPS

The RDS Team had 50 total course-based workshops over the past 2.5 years, with 870 total attendees (see table below).

RDS Course-Based Workshops, Summer 2016 - Fall 2018

Session type	Department name	Attendees	Number of Sessions
course based instruction - grad	Sociology	136	7
	Social Work	134	6
	Education	51	5
	History	43	3
	Communication	28	2
	Applied Linguistics & ESL	29	2
	African-American Studies	22	2
	Real Estate	14	1
	Political Science	24	1
	Marketing	13	1
	Law	15	1
	LAB Atlanta	25	1
	Criminal Justice	15	1
	Business	15	1
	Total	**564**	**34**
course based instruction - grad/undergrad	Anthropology	123	6
	Geosciences	5	1
	Total	**128**	**7**
course based instruction - undergrad	Sociology	98	3
	Public Health	20	2
	Criminal Justice	30	2
	Political Science	15	1
	Economics	15	1
	Total	**178**	**9**
Grand Total		**870**	**50**

NOTE: Above figure generated using Tableau data visualization software.

Our course-based workshops were predominantly with graduate-level classes and spanned various social-science disciplines. Course-based workshops typically involved one of the following:

- An overview of relevant tools for conducting research in that discipline (e.g., an NVivo workshop in a qualitative methods class), or
- A tailored instruction on a tool that students were required to use for an assignment (e.g., using Social Explorer to map social inequality in metro-Atlanta).

RESEARCH TEAM & DEPARTMENT WORKSHOPS

Outside of our open and course-based workshops, we had six workshop sessions with faculty-led research teams and four workshop sessions arranged for interested faculty and graduate researchers within specific departments (see table below).

RDS Research Team/Department Workshops, Summer 2016 - Fall 2018

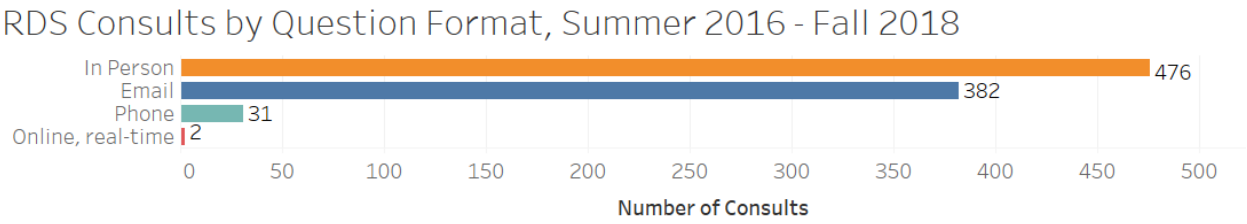
Session type	Department name	Attendees	Number of Sessions
research team	African-American Studies	5	1
	Anthropology	5	1
	Georgia Health Policy Center	7	2
	Graduate Services Office	4	1
	Law	5	1
	Total	**26**	**6**
session - faculty	Education	4	1
	Total	**4**	**1**
session - grads/faculty	CETL/Digital Literacy Conference	17	1
	Total	**17**	**1**
session - graduates	Nursing	9	2
	Total	**9**	**2**
Grand Total		**56**	**10**

NOTE: Above figure generated using Tableau data visualization software.

Our workshops with faculty-led research teams involved targeted training for tools they were using in their project (e.g., an NVivo training with a faculty-led team of graduate and undergraduate research assistants conducting research on global health discourses in NGO websites).

RDS Consults – Got Data?

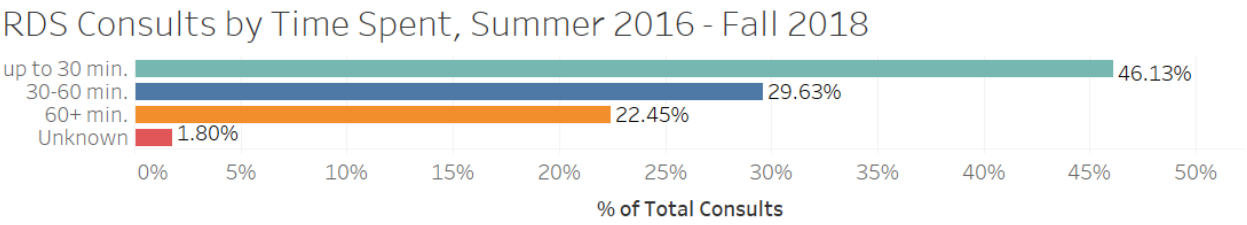
From its inception in Summer 2016 to the end of the Fall 2018 semester, the RDS Team had 891 consults, predominantly via in-person meetings (476, 53.4%) or email exchanges (382, 42.9%) and with occasional consults via phone or real-time virtual spaces such as WebEx or Skype (see chart below).



NOTE: Above figure generated using Tableau data visualization software.

HOW LONG? WITH WHOM? WHAT AREAS?

While about 46% of our consults were 30 minutes or less in time spent, a considerable 22% involved over an hour's time commitment (see chart below).



NOTE: Above figure generated using Tableau data visualization software.

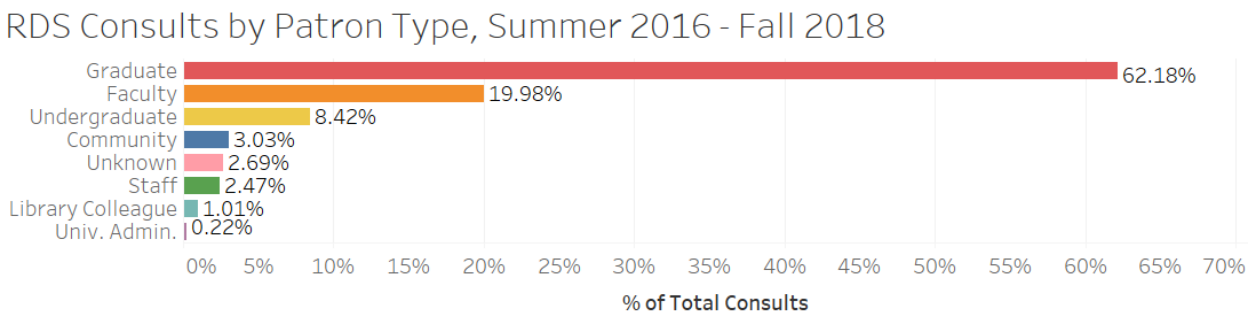
Moreover, within the in-person consults, 31% involved more than an hour's time commitment -- and it is not unusual for the "60+ minute" consults to be upwards of 90 minutes or more in length (see table below).

RDS Consults by Time Spent and Question Format (Column Percentages), Summer 2016 - Fall 2018

	Email	In Person	Online, real-time	Phone
up to 30 min.	63.09%	30.88%		74.19%
30-60 min.	20.94%	36.97%	100.00%	19.35%
60+ min.	13.09%	31.09%		6.45%
Unknown	2.88%	1.05%		

NOTE: Above figure generated using Tableau data visualization software.

Like our open workshops, our RDS consults were dominated by graduate students, representing 62% (554) of our total consults, with faculty consults following at almost 20% (178) of our total consults (see chart below).

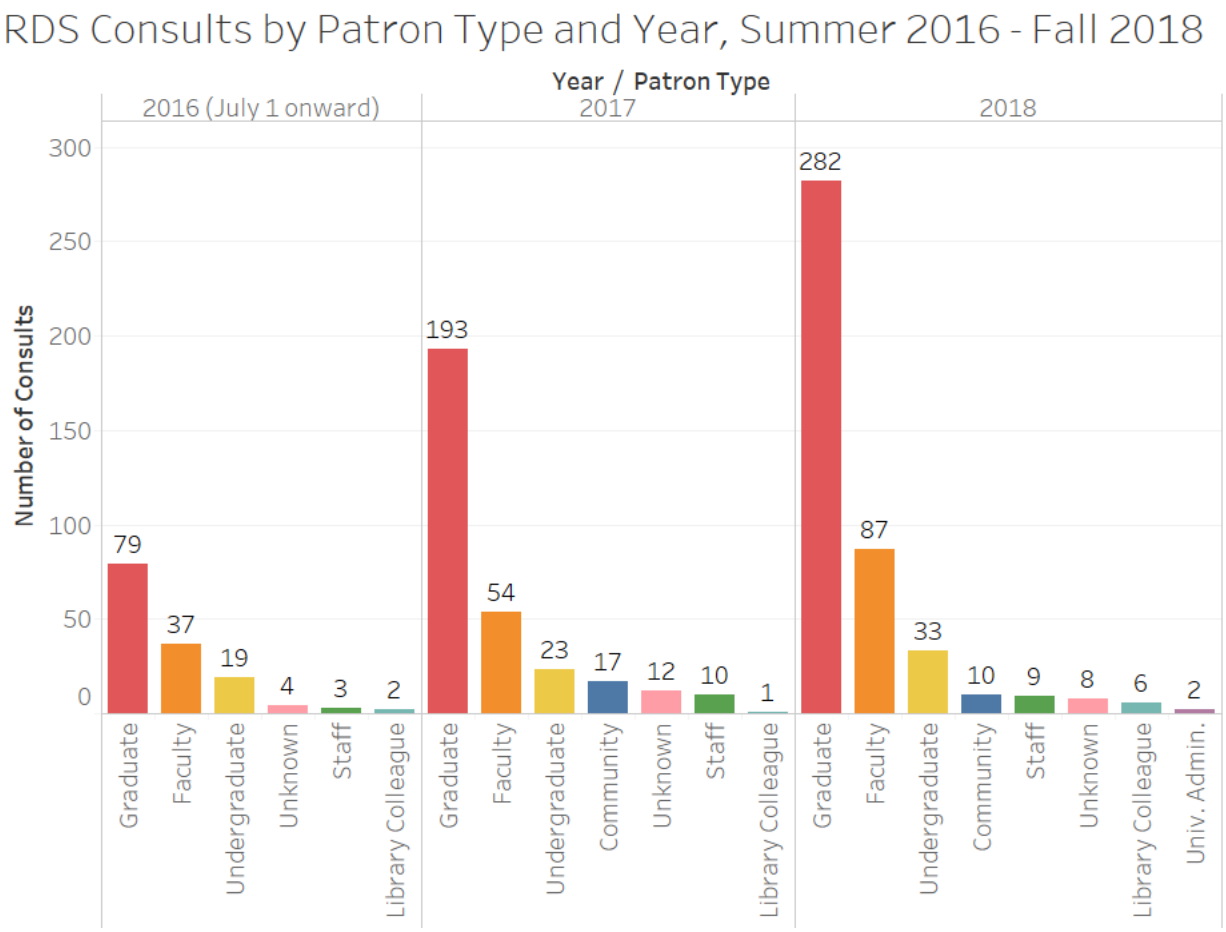


NOTE: Above figure generated using Tableau data visualization software.

Between 2017 and 2018 we saw a particularly noteworthy 41% increase of consults: from 310 in 2017 to 437 in 2018 (see table and chart below). And 186 (43%) of the 437 consults for 2018 are directly attributed to the hire of our Quantitative Data Specialist in June 2018.

RDS Consults by Patron Type and Year, Summer 2016 - Fall 2018

	2016 (July 1 onward)	2017	2018	Grand Total
Graduate	79	193	282	554
Faculty	37	54	87	178
Undergraduate	19	23	33	75
Community		17	10	27
Unknown	4	12	8	24
Staff	3	10	9	22
Library Colleague	2	1	6	9
Univ. Admin.			2	2
Grand Total	144	310	437	891



NOTE: (1) The 2016 consult data represents six months, which should be taken into account when comparing 2016 data to the 2017 and 2018 data, each representing 12 months, respectively; (2) Above figures generated using Tableau data visualization software.

When parsed by academic department and patron type, we get an insightful glimpse into not only the overall demand for RDS consults by academic area but also the dispersion across status of faculty, graduate, undergraduate, and staff researchers within academic departments (see tables below).

RDS Consults by Department and Patron Type, Summer 2016 - Fall 2018

	Faculty	Graduate	Undergraduate	Staff	Grand Total
Sociology	19	116	10		145
Data Services	21	82	8	9	120
Policy Studies	13	55	7	3	78
Business	17	39	7	2	65
Public Health	10	35	1	1	47
Education	17	23	1		41
Gerontology	3	21		5	29
Economics	2	19	6		27
History	14	5	4		23
Political Science	1	14	4		19
Criminal Justice	3	13	2		18
Geosciences	8	8	1		17
Psychology		12	2	1	15
Marketing	1	9	4		14
International Business	3	11			14
Social Work	1	9	3		13
Global Studies	5	2	5		12
Occupational Therapy	1	10			11
Nursing	6	4			10
Finance		7	2		9
Law	1	7			8
Communication	1	7			8
World Languages & Cultures	5	2			7
Management	4	3			7
Anthropology	5	1			6
Urban Studies	2	3			5
English	3	1	1		5
Biology		4		1	5
Health Administration		4			4
Computer Information Sys..		2	2		4
Applied Linguistics and ESL	1	2	1		4
African-American Studies	1	2	1		4
Accounting		3	1		4
Risk Management & Insura..		2	1		3
Real Estate	1	2			3
Physics & Astronomy	1	2			3
Kinesiology & Health Educ..	2	1			3
Art & Design	2	1			3
Other universities - metro-..		2			2
Mathematics & Statistics	1	1			2
GSU admin.	1	1			2
Gender and Sexuality Stud..		2			2
Film & Media	1	1			2
Computer Science		2			2
Physical Therapy		1			1
Nutrition		1			1
Music	1				1
Honors College			1		1
Grand Total	178	554	75	22	829

RDS Consults by Department and Patron Type (Row Percentages), Summer 2016 - Fall 2018

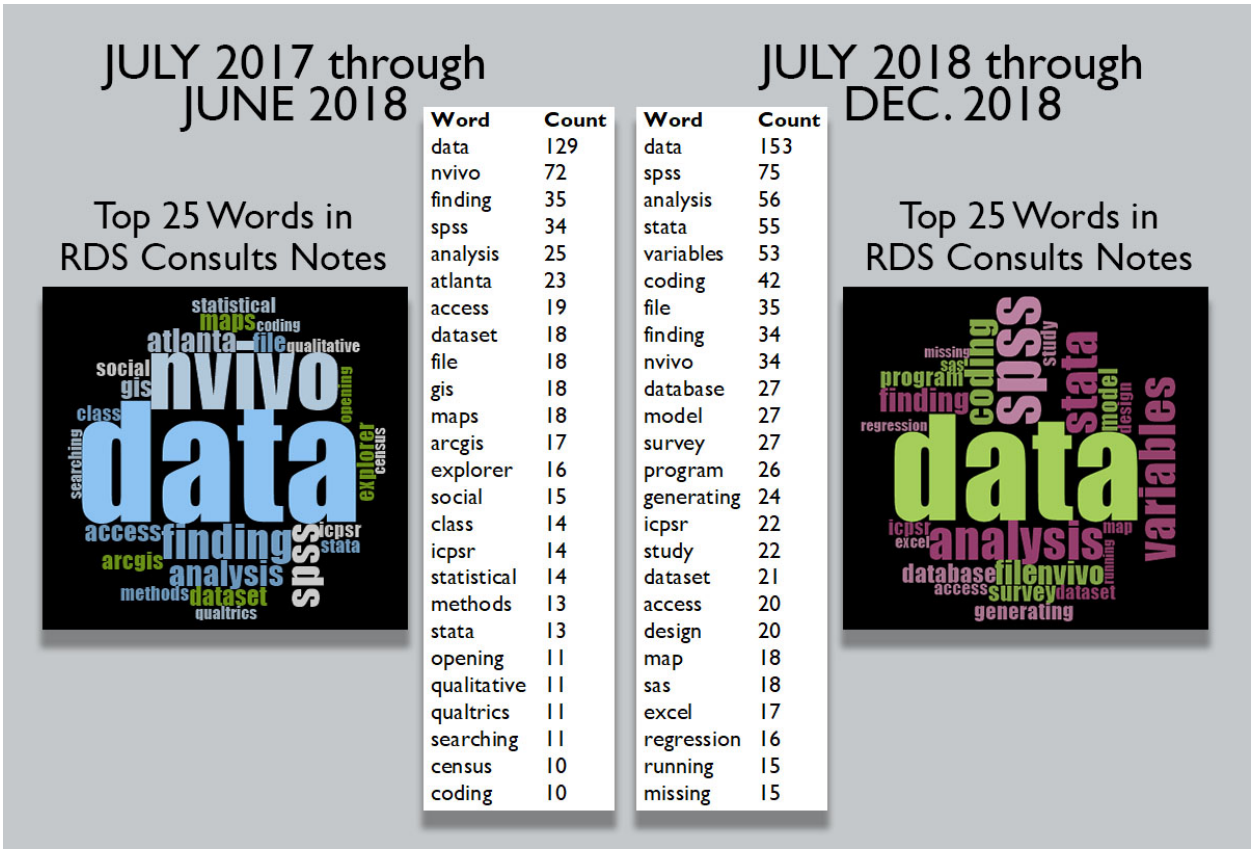
	Faculty	Graduate	Undergraduate	Staff
Sociology	13.10%	80.00%	6.90%	
Data Services	17.50%	68.33%	6.67%	7.50%
Policy Studies	16.67%	70.51%	8.97%	3.85%
Business	26.15%	60.00%	10.77%	3.08%
Public Health	21.28%	74.47%	2.13%	2.13%
Education	41.46%	56.10%	2.44%	
Gerontology	10.34%	72.41%		17.24%
Economics	7.41%	70.37%	22.22%	
History	60.87%	21.74%	17.39%	
Political Science	5.26%	73.68%	21.05%	
Criminal Justice	16.67%	72.22%	11.11%	
Geosciences	47.06%	47.06%	5.88%	
Psychology		80.00%	13.33%	6.67%
Marketing	7.14%	64.29%	28.57%	
International Business	21.43%	78.57%		
Social Work	7.69%	69.23%	23.08%	
Global Studies	41.67%	16.67%	41.67%	
Occupational Therapy	9.09%	90.91%		
Nursing	60.00%	40.00%		
Finance		77.78%	22.22%	
Law	12.50%	87.50%		
Communication	12.50%	87.50%		
World Languages & Cultures	71.43%	28.57%		
Management	57.14%	42.86%		
Anthropology	83.33%	16.67%		
Urban Studies	40.00%	60.00%		
English	60.00%	20.00%	20.00%	
Biology		80.00%		20.00%
Health Administration		100.00%		
Computer Information Sys..		50.00%	50.00%	
Applied Linguistics and ESL	25.00%	50.00%	25.00%	
African-American Studies	25.00%	50.00%	25.00%	
Accounting		75.00%	25.00%	
Risk Management & Insura..		66.67%	33.33%	
Real Estate	33.33%	66.67%		
Physics & Astronomy	33.33%	66.67%		
Kinesiology & Health Educ..	66.67%	33.33%		
Art & Design	66.67%	33.33%		
Other universities - metro-..		100.00%		
Mathematics & Statistics	50.00%	50.00%		
GSU admin.	50.00%	50.00%		
Gender and Sexuality Stud..		100.00%		
Film & Media	50.00%	50.00%		
Computer Science		100.00%		
Physical Therapy		100.00%		
Nutrition		100.00%		
Music	100.00%			
Honors College			100.00%	
Grand Total	**21.47%**	**66.83%**	**9.05%**	**2.65%**

NOTE: (1) When the academic area of the person being consulted was unknown (common particularly with email consults), their department was logged as 'Data Services'; (2) Above figures generated using Tableau data visualization software.

WHAT TOPICS?

The RDS Team records open-ended notes about the topics of our consults. The consult notes from July 2017 to June 2018 and from July 2018 to December 2018 were imported into NVivo qualitative research software to glean information about the breadth of topics our RDS consults encompass as well as to explore the impact of adding the Quantitative Data Specialist to the RDS Team in Summer 2018.

Querying the notes text for the top 25 most frequently occurring words revealed insightful patterns within and across the two time frames (see figure below).



Word	Count
data	129
nvivo	72
finding	35
spss	34
analysis	25
atlanta	23
access	19
dataset	18
file	18
gis	18
maps	18
arcgis	17
explorer	16
social	15
class	14
icpsr	14
statistical	14
methods	13
stata	13
opening	11
qualitative	11
qualtrics	11
searching	11
census	10
coding	10

Word	Count
data	153
spss	75
analysis	56
stata	55
variables	53
coding	42
file	35
finding	34
nvivo	34
database	27
model	27
survey	27
program	26
generating	24
icpsr	22
study	22
dataset	21
access	20
design	20
map	18
sas	18
excel	17
regression	16
running	15
missing	15

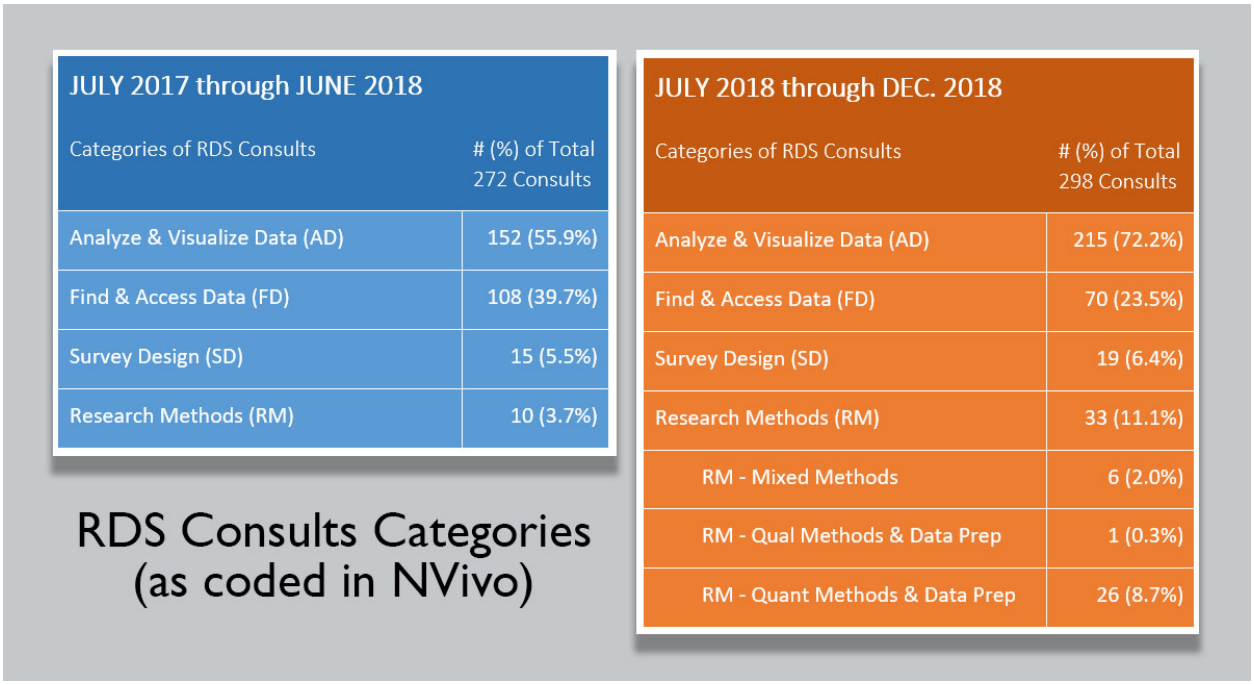
NOTE: (1) Approximately five iterations of the queries were run to arrive at the reported results, using the stemmed word groupings feature (e.g., 'finding' count includes find and finds) and adding words with no substantive meaning to the stop words list; (2) Above figure generated using NVivo qualitative analysis software.

Both time frames have frequent mentions of data analysis and visualization software/tools (SPSS, NVivo, Stata, SAS, ArcGIS), hinting that this type of support dominated our RDS consults. Likewise, frequent occurrence of variations of 'finding', 'accessing', 'searching', and 'ICPSR' suggest that helping researchers find and access data was also a typical support area.

Between time frames there is a noticeable increase in occurrences of words signifying quantitative support, such as mentions of specific statistical software (SPSS, Stata, SAS, Excel) and 'variables', 'coding', 'model', 'survey', 'dataset'/'database', 'regression', 'running' (code), and 'missing' (data) --

clearly demonstrating the impact of adding the Quantitative Data Specialist to the RDS Team in Summer 2018.

After conducting these queries, the notes text was then read and manually coded/tagged for RDS support categories and subcategories (see figure below).



JULY 2017 through JUNE 2018

Categories of RDS Consults	# (%) of Total 272 Consults
Analyze & Visualize Data (AD)	152 (55.9%)
Find & Access Data (FD)	108 (39.7%)
Survey Design (SD)	15 (5.5%)
Research Methods (RM)	10 (3.7%)

JULY 2018 through DEC. 2018

Categories of RDS Consults	# (%) of Total 298 Consults
Analyze & Visualize Data (AD)	215 (72.2%)
Find & Access Data (FD)	70 (23.5%)
Survey Design (SD)	19 (6.4%)
Research Methods (RM)	33 (11.1%)
RM - Mixed Methods	6 (2.0%)
RM - Qual Methods & Data Prep	1 (0.3%)
RM - Quant Methods & Data Prep	26 (8.7%)

RDS Consults Categories (as coded in NVivo)

NOTE: (1) A single consult may be coded to multiple categories (e.g., a single consult might involve both finding data and analyzing data); consequently, the total of the discrete category counts within time frames outnumbers the total consults; (2) Above figure generated using NVivo qualitative analysis software and Microsoft Word.

Consults in the ANALYZE & VISUALIZE DATA category demonstrated a noticeable increase in the second time frame -- again, largely as a result of the addition of our Quantitative Data Specialist and her capacity to support more statistical software and analysis methods. Similarly, the RESEARCH METHODS category's increase largely can be attributed to our Quantitative Data Specialist's capacity to offer broader methodological advice not exclusively tied to software support.

The ANALYZE & VISUALIZE DATA consults, which dominate both time frames, typically involved software support of some kind (see figure below for subcategories of software support).

Software/Tools RDS Consults Categories (as coded in NVivo)

JULY 2017 through JUNE 2018	
Categories of RDS Consults – Software/Tools (152)	# (%) of 152 Consults
Quantitative Software/Tools	41 (27.0%)
Qualitative Software/Tools	68 (44.7%)
Mapping & Data Visualization	42 (27.6%)

JULY 2018 through DEC. 2018	
Categories of RDS Consults – Software/Tools (215)	# (%) of 215 Consults
Quantitative Software/Tools	143 (66.5%)
Qualitative Software/Tools	32 (14.9%)
Mapping & Data Visualization	39 (18.1%)

NOTE: (1) Each time frame had one consult that did not clearly fit these software subcategories; consequently, the total of the discrete category counts within each time frame are less than the total consults; (2) Above figure generated using NVivo qualitative analysis software and Microsoft Word.

That said, 'software support' was often intertwined with advice regarding tasks spanning the entire research lifecycle:

- Managing, organizing, and preparing both quantitative and qualitative data sources for analysis and visualization;
- Capitalizing on software features to perform analyses and visualization;
- Advising on proper statistical tests to run, or on drawing out themes from qualitative data, or on research methodology more generally;
- Interpreting results of analyses;
- Visualizing the data for analysis and presentation purposes.

The FIND & ACCESS DATA consults, which represent a comparatively smaller portion of our RDS consults in both time frames, primarily involved helping researchers find existing statistics and raw data sources for analysis and visualization purposes.

Umm…Lifeboats?

While the RDS Team had many successes in our first 2.5 years, it hasn't always been smooth sailing. Below are key challenges we faced and the 'lifeboats' we found to help us through the rough patches.

WORKSHOP ATTENDANCE

Preparing a workshop to have sometimes only a handful of people show up can be disappointing and discouraging. And, while we have seen an overall increase in our average attendance in the past 2018 year, we'd like to see attendance numbers increase even more significantly.

LIFEBOATS --We implemented two initiatives this Spring 2019 semester aimed at increasing overall workshop attendance: (1) our RDS@GSU Data Certification program and (2) our Data After Dark workshops.

RDS@GSU DATA CERTIFICATION -- This initiative is a brainchild of our Quantitative Data Specialist. Those who attend a minimum five unique RDS workshops by the end of the Spring 2019 semester will be invited to a ceremony where they can enjoy refreshments, mingle with other certificate awardees, and receive a custom certificate from our Dean of Libraries. We still have four workshops left for the semester, so the final data isn't in yet to assess the definitive success of this initiative. However, what we can gauge at this point looks promising:

- If those registered for the remaining four workshops attend, we will award RDS@GSU Data Certificates to 89 people.
- Our average attendance at the Spring 2019 workshops as of 4/6 is 13.94 -- an increase of 5.74 from our 2018 overall average of 8.20.

DATA AFTER DARK WORKSHOPS -- Many GSU affiliates work full-time or have other commitments that make it difficult to attend our daytime workshops. This Spring 2019 semester we piloted offering some of our more popular workshops at night. We still have one nighttime workshop left for the semester, so the final data isn't in yet to assess the definitive success of this initiative -- but it looks promising:

- Our average attendance at the nighttime workshops as of 4/6 is 13.21, which is on par with our average daytime attendance of 13.94.
- A night-time Stata 1 workshop had the highest attendance across all workshops with 23 attendees, with 2nd place going to a night-time SPSS 1 workshop (21 attendees) and 3rd place to a night-time SPSS 2 workshop (20 attendees).

ANALYSIS HELP -- WHERE ARE THE BOUNDARIES?

We went into offering quantitative/statistical software support trying to draw a hard line of "but we don't provide analysis advice." We quickly learned taking this approach was challenging to maintain and adequately support our researchers' needs.

LIFEBOATS -- Hiring our Quantitative Data Specialist has gone a long way in allowing us to further integrate analysis support into our services. But keeping a proper balance of when it's okay to say "I'm not the appropriate person to help with this" even if one has the knowledge/skills to do so remains a challenge. Moreover, even with the recent addition of the Quantitative Data Specialist, the demand for such time-intensive support has already surpassed the capacity of our RDS Team...

LIFEBOATS -- We are opening a search for another Data Services Librarian who will hopefully buttress our analysis support. Likewise, our Quantitative Data Specialist is mentoring a graduate research assistant to take on some intermediary-level statistical support duties to open up her time to better meet the advanced-level statistical needs of our researchers.

WHAT DO YOU MEAN YOU DON'T HELP WITH R?

Maintaining consistent and sustainable services is challenging when individuals tend to have unique skills – and, if they leave for somewhere else, then what? We could try to do more cross-training amongst our RDS Team to alleviate the threat of lost services, but it's particularly challenging when:

- With the exception of the Quantitative Data Specialist, the remaining RDS Team members (including myself) are also liaison librarians and thus taxed with other responsibilities, and
- Certain areas of RDS support require knowledge/skills that are not typical of traditionally trained MLIS-holding librarians.

LIFEBOATS -- We have hired graduate research assistants on and off over the last 2.5 years to buttress our services. Similarly, some library colleagues have volunteered support as 'affiliates' to the RDS Team. However, the transient

nature of graduate assistantships and colleagues under no obligation to lend a helping hand is not ideal for offering consistent and sustainable RDS support services. Our Quantitative Data Specialist is going to Stats Camp this summer to beef up her R skills, other RDS Team members are exploring professional development opportunities, and with the addition of our newest Data Services Librarian perhaps we'll gain more traction.

BUT, WHY THE *LIBRARY?*

Not all of our campus researchers necessarily think of the *library* when they think about getting help with all things data. Similarly, some of our librarian colleagues find the notion of the library providing "data services" perplexing -- particularly in the areas of analysis support.

LIFEBOATS -- The more we get the word out to campus researchers about the RDS support we offer, the more they see the value of our services. They are frankly ecstatic to see this huge gap in services on our campus being filled, so who fills it is of little concern to them as long as it's quality service.

Within the library we share our RDS successes and challenges via Tableau data stories, informational pieces, and sharing sessions, with the aim of demystifying what the RDS Team does to expand research support across the entire research lifecycle. And we're always open to more 'affiliates' who want to try out RDS support themselves -- this RDS boat has room for plenty more!

Set a Course for Adventure…

Perhaps this glimpse at Georgia State University Library's foray into 'the deep' of data services has inspired you to chart your own voyage? If so, below are some last words of advice from a semi-seasoned sailor and captain.

NEEDS ASSESSMENT

Conduct at least an informal needs assessment before setting sail:

- See whether other campus entities are offering data services. If they are, what gaps need filled? If they are not, what capacity does your library currently have to offer the needed services, and what resources would it need to build that capacity?
- Talk to campus researchers across all levels to see what are the perceived needs and current gaps in filling those needs.

Also, consider doing a formal needs assessment either before or after implementing your data services program. Our RDS Team has two formal needs assessment projects in the works right now to collect more information about our campus researchers' needs.

GET BY WITH A LITTLE HELP FROM YOUR PROFESSIONAL FRIENDS

Seek knowledge from your professional colleagues who have ventured into data services support.

Suggested readings:

- *Databrarianship: The Academic Data Librarian in Theory and Practice* (Lynda Kellam & Kristi Thompson, eds., 2016)
- *The Data Librarian's Handbook* (Robin Rice & John Southall, 2017)
- *Working as a Data Librarian: A Practical Guide* (Eric O. Johnson, 2018)

Professional associations:

- International Association for Social Science Information Services & Technology (IASSIST)
- Research Data Access & Preservation Association (RDAP)

Conferences:

- IASSIST annual conference
- RDAP annual summit
- Regional Data Librarian Symposiums (Midwest, Southeast, Mountain West)

And don't be afraid to reach out directly to professional colleagues who've implemented data services programs -- we are a welcoming bunch eager to help others launch their own data services ships!

BON VOYAGE!