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Talking of Many Things: Dashboards for Reference Services Decision-Making

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Abstract

Staffing challenges are well documented in reference services, but the use of dashboards to support data-driven scheduling for in-person and virtual reference shifts are not often discussed. This poster examines how Michigan State University Libraries utilized data-influenced decision-making and dashboard design iterations to streamline reference staffing and adapt to evolving conditions over the course of three years. This required continuous communication between dashboard users and creators and constant iteration of visualizations and designs to ensure dashboards remained relevant and current. Limitations of a purely quantitative data-driven strategy are also discussed at the conclusion of the final year.

Introduction

Visualizations and dashboards can be extremely valuable for decision-making. They reveal patterns and trends not otherwise evident when data is presented in numerical, tabular form. Staffing challenges are well documented in reference services, but the use of dashboards to support data-driven scheduling for in-person and virtual reference shifts is not often discussed.

Reference service interaction dashboards have been used to plan reference service staffing at Michigan State University (MSU) Libraries for several years. During the last three years external circumstances such as relocation of the physical reference service point and changes in chat software and chat service providers transformed the context in which data was used and the questions being asked. Consequently, the dashboard was iteratively adapted to ensure the most meaningful and useful data was included and displayed in a manner that best supported decision-making for each year.

Background

Unlike similar academic libraries within the Big Ten Academic Alliance, the MSU Main Library reference service (desk, chat, and e-mail) is staffed primarily by librarians with limited support staff or student assistance. The library is able to do so through a unique assignment format for professional librarians—primary and secondary assignments. Main Library Reference Services is a unit composed almost entirely of secondarily assigned librarians. This means reference librarians spend 25% of their professional time on desk, chat, or e-mail but their primary responsibilities may range from Collections/

Liaison (the largest group) to Teaching and Learning to Cataloging to Digital Information. Overall, approximately 30 librarians (approximately 30% of all MSU librarians) spend between 6 and 9 hours a week divided between desk, chat, and e-mail reference services. Most serve on all service points, but a small number work exclusively on e-mail or chat or only e-mail and desk. Additionally, some library personnel, both librarians and library staff (nonfaculty), contribute hours. The large number of staff and the variety of services points involved creates a complex and challenging scheduling environment.

Additionally, Reference Services, with its large staff and highly visible first-floor desk, has traditionally been used to acculturate and onboard new librarians in a large and growing library. As the Reference desk is doubled staffed, new librarians have the opportunity to meet and work alongside more seasoned faculty while also literally being seen by other library faculty. New librarians facing reappointment in their third year are more familiar to their voting peers. From a professional development context, placing new librarians at the reference desk gives them an overview of MSU and MSU Libraries as they answer questions from a wide range of disciplines, interests, and informational needs. All librarians also value the opportunity to network and learn from colleagues in other library divisions.

Whereas the desk sees primarily young and novice library users (such as first-year and sophomore students, faculty and staff new to the MSU community, and community patrons), a wider variety of patrons is encountered through chat (virtual) reference service. MSU Libraries is part of a consortial statewide chat reference service, Research Help Now, part

Table 1. Reference staffing hours per week by service, 2016–2019.

Year	E-mail hours per week	Chat hours per week	Desk hours per week (includes hours for double staffing)
Fall/Spring 2016–2017	14	29	127
Fall/Spring 2017–2018	14	36	117
Fall/Spring 2018–2019	14	48	71
Fall 2019	14	48	77

of OCLC’s—and now Springshare’s—QuestionPoint service. International in scope, MSU librarians staff this service even if MSU patrons are not the primary users in that time slot. Because of the nature of the service, and perhaps the ease of use, chat question traffic is always higher than desk traffic.

Year 1: 2016–2017

Like many academic libraries, MSU Libraries experimented with adjacent Circulation and Reference desks. However, the library eventually chose not to create a single service point. Instead, a large, very visible Patron Services desk was created for circulation and reserve functions. The Reference desk was relocated around the corner from the Patron Services desk, away from its previous, more central position. Understanding the impact of this location change on Reference desk transactions became the primary driver behind the creation of the initial reference transaction dashboard.

This first dashboard was created in Tableau, an interactive data visualization tool. It was based on one created by a librarian who subsequently left the MSU Libraries. The dashboard displayed bar graphs of aggregated desk transactions by day and hour by type of transaction (directional, technology, and research), with filters for years and months. Beneath that was a visualization of every single desk transaction over the same period. Chat statistics were not integrated into the dashboard due to lack of well-formatted data from the chat service provider. No changes were made to the original dashboard except to add a separate page with a forecast that “predicted” a major drop in desk statistics.

Although there was a decline in desk transactions after the relocation of the physical service point, no substantive changes were made to staffing allocations in this first year. The somewhat late in the semester relocation of the physical Reference desk in February 2017 meant it was unclear what the real impact of the relocation was on transaction statistics. Hours assigned to staff at the desk dropped slightly from 127 to 117 hours a week, but the desk was still double-staffed most of the time. Hours assigned to chat increased from 29 to 36 hours a week.

Year 2: 2017–2018

MSU Libraries changed chat software providers in the 2017–2018 academic year. For reasons that are still unclear, this led to a very large and unexpected increase in chat numbers. Chat librarians were often fielding multiple chat patrons simultaneously, leading to a greater sense of stress. The main motivation for analyzing reference transactions thus changed from understanding trends in Reference desk transactions to understanding the dramatic shift in chat reference and deciding whether more hours should be allocated to chat to alleviate the increased stress experienced by chat librarians.

One of the advantages of the new chat software vendor was the ability to acquire data in a format suitable for addition to the dashboard. For the first time chat and desk data was visible on a single dashboard in separate but similar visualizations. Bar graphs displayed aggregated chat and desk transactions by day and hour with filters for years and months. Chat data for all MSU patrons (regardless of whether the chat was answered by MSU librarians) replaced the visualization of every single desk interaction on the dashboard. The original visualization of every desk transaction looked impressive but did not provide actionable data. This highlights the importance of curating dashboards to ensure they provide the right data to answer management questions and are not cluttered with superfluous visualizations.

Additional dashboard pages were also created to show changes in desk transactions by day and hour from the prior year. The viewer can see immediately whether desk transactions had declined or increased on a specific day and hour, allowing the user to make very granular decisions about staffing for individual shifts. The length of chat transactions was also visualized in a tree map to better understand the phenomenon of simultaneous chat patrons. This revealed that a large proportion of chats were of

fairly short duration, so while simultaneous chats created stress for chat librarians, the interactions themselves were not necessarily very involved or in-depth.

In response to the large increase in chat numbers, the decision was made to single-staff the Reference desk. This change reduced hours spent by staff at the desk from 117 hours to 71 hours per week without decreasing overall service hours. Maintaining desk service hours was an important consideration for library management. The chat service had always been single-staffed. This continued but staff hours freed up by fewer scheduled desk hours allowed MSU librarians to expand availability on the collaborative chat service from 36 hours to 48 hours a week. Hours for expansion (weekday late mornings and Sundays) were chosen based on the days and times when most MSU students were utilizing chat, highlighting a direct benefit of the dashboard.

Year 3: 2018–2019

MSU Libraries, as part of its consortial responsibilities, returned to its original chat software provider. Although the change was unrelated to staffing, librarians expressed greater comfort with chat shifts as traffic slowed. Chat hours covered remained the same but at a less hectic pace. However, even as overall contentment improved for librarians on chat, librarians at the desk expressed their dissatisfaction with single staffing. They felt single staffing was not fulfilling the secondary but very important objective of acculturating and onboarding new librarians. Seasoned librarians also remarked at the lack of informal professional development. Working side by side meant learning from each other as librarians attack and answer questions differently and sometimes with very different tools. Finally, librarians also missed the collegial nature of a double-staffed Reference desk, many stating they never saw

colleagues from other divisions except when on the desk with them.

Due to the change in chat software providers, available chat data differed from the previous year's. Only chats answered by MSU Librarians were included in the new data set, regardless of whether they were responding to MSU patrons or not. Previously chat numbers were of chats initiated by MSU patrons, regardless of the responding librarian's affiliation. That gave a clearer picture of MSU patrons' chat activity. This year's statistics naturally reflect times MSU librarians staff the service and can therefore offer no guidance on whether chat availability needs to be expanded. This is problematic as one of the library's priorities is to maximize the probability that MSU chat patrons will be able to chat with a MSU librarian through data-driven staffing decisions. MSU Libraries will transition to another new chat service provider in spring 2019, so more comparable data to 2017–2018 may once again be available.

Although the statistics did not warrant a return to double staffing on the desk, additional desk shifts were added (three 2-hour shifts for a total of 6 hours). These spanned two regular shifts to maximize interaction opportunities. Chat staffing was maintained at previous levels.

Conclusion

MSUL utilized data-influenced decision-making and dashboard design iterations to streamline reference staffing and adapt to evolving conditions over the course of three years. However, the final year also revealed the limits to relying solely on quantitative data for decision-making. Flexibility and communication between the dashboard user and creator were of critical importance to ensure the dashboard continued to meet changing needs. In addition, data availability influenced dashboard design.