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The Myth of the Declining Reference Statistic: Revealing Dynamic Reference Services through Digital Analytics

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It seems customary practice now for libraries to “justify” their relevance, impact, contributions, and more. Traditionally, we do this by looking at some basics statistics – how many people walk through our doors, how many classes/workshops are we teaching, how many people did we help at the reference desk? It is hard to deny when looking at these statistics there are some obvious trends. In the reference realm, this historically translates to decreasing statistics, but are these numbers telling the whole story? Is reference usage really going down? Are there other analytics to be brought into the discussion to provide a more accurate picture of reference use? We propose the need for all libraries to adopt a new more holistic assessment of reference services. This chapter details a case study of a dynamic reference department at Florida International University which seeks to redefine reference services usage through the adoption of a more complete analytics landscape; we will also reexamine the practice of reference related analytics and share our strategic approach for assessing the use of reference services.

Traditional Reference and its Analytics

Reference services describe any one-on-one personal assistance to library users. Historically, these services referred to helping patrons to use the library and its resources, answering patron questions, aiding readers in the selection of good books, and promoting the library within the community.¹

Measuring the use of this service has been limited to recording “patron interactions to illustrate the type and number of services provided.”² These basic reference statistics include: location

¹ Richard E. Bopp and Linda C. Smith, *Reference and Information Services: An Introduction*, 4th ed. (Englewood: ABC-CLIO, LLC, 2011), 768.

² Emily Vardell, Kimberly Loper and Vedana Vaidhyanathan, "Capturing Every Patron Interaction: The Move from Paper Statistics to an Electronic System to Track the Whole Library," *Medical Reference Services Quarterly* 31, no. 2 (2012), 159-170.

(where were you), method (how did the transaction take place), patron type (who asked it), length (how long did the transaction take), and type of question (what did they ask).

Annually, libraries participate in a ritual of analyzing and reporting on these statistics, which often are shared institutionally, regionally, or even nationally. Through this yearly tracking of reference interactions, these statistics also become a form of benchmarking, against ourselves and our peers, and help us to evaluate or assess our services and resources. Sometimes this data is even used to justify scheduling adjustments, funding, or shifts in service priorities.

Yet, as information and research needs of our patrons evolved, so have reference services. Expansions in library services and collection formats, and technological transformations in general, have resulted in a corresponding expansion of services provided by reference professionals. These services can now include conducting reference interviews at the reference desk or online, liaising with university departments, bibliographic instruction, creating online guides and tutorials, research consultations, and more.

With the proliferation of personal computers with Internet access and the race by publishers to digitize their content, some reference librarians believed they heard a death knell to traditional reference services. In 2000, Jerry D. Campbell, then Dean of University of Southern California Libraries, made a plea for reference librarians to embrace online learning, asynchronous educational technology, and cited the “decline in the number of reference questions” as a “generally reported phenomenon among members of the Association of Research Libraries.”³ However, Malony and Kemp’s meta-analysis of seven studies published between 1977 and 2012 on the complexity of questions received during reference transactions and their direct analysis of data gathered at those libraries service points, surmised that “after years of decline in both the

³ Jerry D. Campbell, "Clinging to Traditional Reference Services: An Open Invitation to Libref.Com," *Reference & User Services Quarterly* 39, no. 3 (2000), 223-227.

number and complexity of questions, it appears that proactive online chat systems can provide an opportunity for libraries to reverse the trend.”⁴ We also believe that the death of reference and decline of reference statistics has been greatly exaggerated. Reference departments successfully moved from a print-based environment to one dominated by online databases and eBooks. Similarly, many reference departments expanded services beyond the reference desk to include deep embedding in courses, creating online tutorials, and of course, a variety of virtual services. We have failed, however, to move to a more comprehensive analysis of our new reference environment.

Identifying the Gaps and Redefining Reference Services

Data gaps exist within the narrow spaces and definitions of traditional reference and research services. The data collection process involving our reference services have not progressed beyond how many questions we are answering at the reference desk or how many students we bring into our classrooms. There appears to be a trend of declining reference service use, which leads some to believe these services may not be needed anymore within our libraries. However, looking at data and examining what we perceive to be trends in isolation, is a disservice to ourselves and it undermines the massive amounts of work and investment reference departments put into creating online research guides, providing virtual reference services, and developing sophisticated reference scaffolding established to navigate library users through their reference journeys. Scaffolding is a concept that emerged from the education field,

“(t)he metaphor of scaffolding has been widely used in recent years to argue that, in the same way that builders provide essential but temporary support (with structural scaffolding), teachers need to provide temporary supporting structures

⁴ Krisellen Malony and Jan H. Kemp, "Changes in Reference Question Complexity Following the Implementation of a Proactive Chat System: Implications for Practice," *College & Research Libraries* 76, no. 7 (2015), 959-974.

that will assist learners to develop new understandings, new concepts, and new abilities. As the learner develops control of these, so teachers need to withdraw that support, only to provide further support for extended or new tasks, understandings and concepts.”⁵

Likewise, reference scaffolding encompasses the myriad of interventions and touch-points that reference departments have put into place to help users as they maneuver through our resources, meeting users where they are, at their pace, and at their point of need. At Florida International University Libraries (FIU Libraries) we recently rolled out a one-stop information literacy and reference toolkit made up of a variety of tutorials, FAQs, videos, and resources at varying skill levels, *researchHOW - Information Literacy Toolbox* (<http://libguides.fiu.edu/infolit>). Conceptually, each one of these unmediated touch-points should be taken into account when examining reference services analytics.

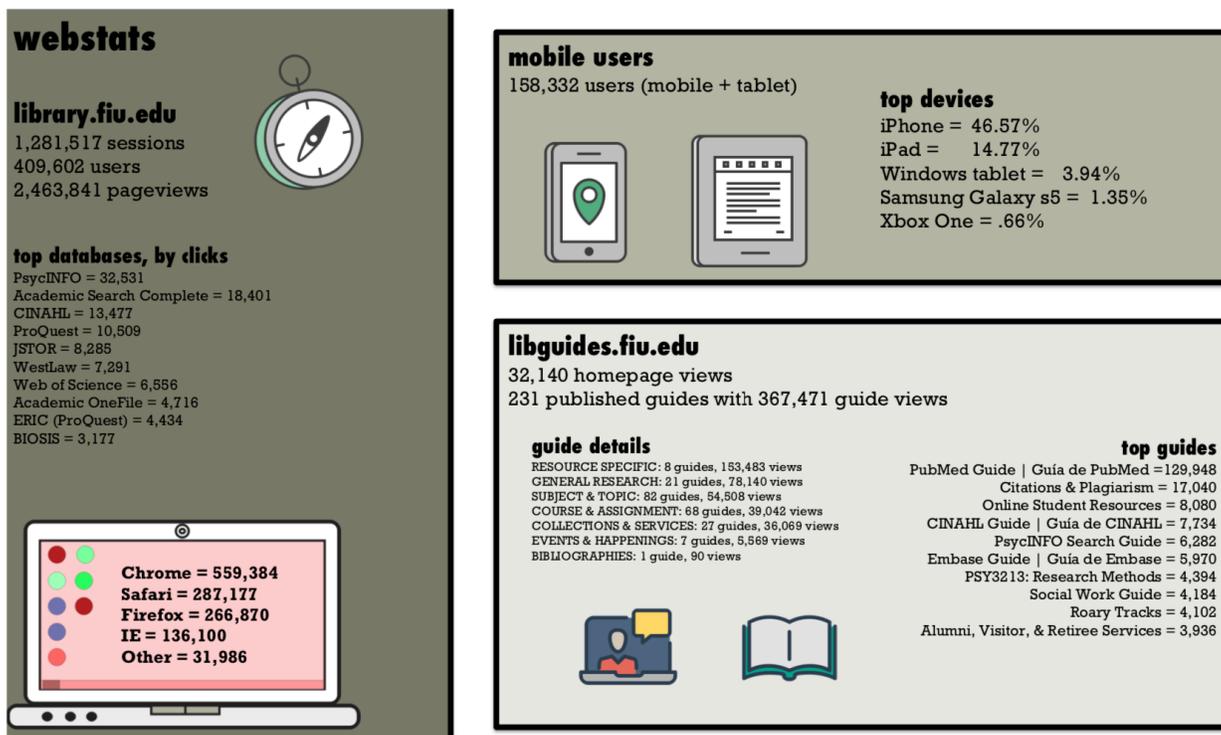
Currently, library users have multiple means of receiving reference assistance without ever interacting with the traditional reference desk. Hence, traditional reference statistics alone cannot truly assess reference services. However, “quantitative measurements by themselves are not very meaningful.”⁶ A variety of different data sources together with their context, the story you tell with those numbers, is the most useful.

The reference department at FIU Libraries recently identified our own data gaps when pulling together statistics for our annual departmental report, an “aha moment” revealed itself. With our dedicated investment in online help content creation, online reference services, the development of our *researchHOW* platform, information literacy modules, and topical

⁵ Hammond, Jennifer., Primary English Teaching Association., *Scaffolding : Teaching and Learning in Language and Literacy Education* (Newtown, N.S.W.: PETA, 2001), 13-14.

⁶ Neil A. Radford, "The Problems of Academic Library Statistics," *The Library Quarterly: Information, Community, Policy* 38, no. 3 (1968), 231-248.

interdisciplinary research guides, we discovered a whole new body of potential data points that expands our traditional reference desk statistics. To better illustrate the complete story of our new, complex information and research services landscape, we added additional data points including: statistics for LibAnswer FAQs, tutorial/module usage, SMS/text automated responses, and LibGuide usage to our departmental annual report (figure 1).



This new report style highlighted the disparities between the services we were providing and how we were presenting the data. Library website (<https://library.fiu.edu/>) and LibGuides (<http://libguides.fiu.edu/>) usage continues to rise. Additionally, while our total reference transactions went down by over 3,000 transactions in just one year, chat research questions were higher than our face-to-face research questions. The answer as to why cannot be answered by the data alone – it requires context. This decrease is due to the significant amount of the reference scaffolding we put into place in our website, LibAnswer FAQs, and LibGuides to provide unmediated, point-of-need reference services. This new approach to our reference service attempts

to anticipate user needs throughout their research journey by putting into place tools and resources to help them better navigate the information landscape and help themselves. Our goal is to empower library users to become more independent and self-taught. The more we improve our websites and build up our online help guides, the more our library users will rely on these tools. We foresee library users will use our traditionally defined reference desk less and the use of other types of reference services will increase.

How We Did It

First, it is important to understand the evolving nature of reference services at FIU Libraries. These services are provided by the Information and Research Services departments at the Green Library, Modesto Maidique Campus, and the Hubert Library, Biscayne Bay Campus, both located in Miami, Florida. FIU has more than 54,000 students and is in the top ten largest public universities in the United States. However, size itself is less important than scale to leverage institutional priorities in a context of a dynamically growing community with a high percentage of foreign-born residents, English-language learners, first generation students, and place-bound learners.⁷ The university's current strategic plan (<http://stratplan.fiu.edu/BeyondPossible2020.html>) introduced a new key measurable goal of increasing student enrollment by “increasingly using digital technologies to enhance face-to-face and distance learning.” This shift towards online instruction forced the library to reevaluate both its instructional and reference services. We responded by implementing Springshare's LibGuides platform as a way of supplementing the increasing demand for one-shot instruction sessions. Our service and offerings have to address student success outcomes, critical and creative thinking, and infallible education technology as deliverables. FIU Libraries also invested in hiring several

⁷ "About Us," Florida International University, <http://www.fiu.edu/about-us/index.html>.

individuals to support online learning, virtual reference, instructional technologies, and user experience. There is now dedicated staff to provide virtual reference and instruction services.

In response to all of these new reference initiatives (LibGuides, virtual reference, new hires, and other online reference related tools), we expanded our definition and data points for reference analytics to provide a more complete picture of the library's contributions to the university's call to action. Reinventing our departmental annual report led to not only a rethinking of how we talk about what we do, but also led to a discussion of how we work, the services we offer and how we offer them, and who our users are. Collecting data to reflect this new thought process was overwhelming. Various strategic initiatives, organizational changes, projects, and working groups have been developed as a result. The most essential new working group is RefTech.

Establishing Ownership of Analytics & Assessment

The Green Library's Information and Research Services department formed a working group responsible for technology related projects impacting reference and instruction services in the libraries called RefTech. RefTech is comprised of Information and Research Services staff who participate in the core duties of reference, liaison, and instruction services. These librarians are also experts in educational technology, distance learning, web services, and usability testing. The Emerging Technologies Librarian chairs this group and the rest of the unit is composed of the Business and Online Learning Librarian, Digital Technologies Development Librarian, Virtual Learning & Outreach Librarian, Web Services Librarian. RefTech also works closely with both the User Engagement Librarian and the Library Systems department. While the group is still considered a pilot project, it successfully centralized web content management, a LibGuides and LibAnswers migration and redesign, and implemented several learning tools and platforms.

RefTech has allowed the I&RS department overall to become more responsive to patron feedback and needs. Since this group manages these reference related systems, it makes sense they also lead the reference and instruction data collection process. The group has been foundational in recognizing assessment gaps and in being an example of a transformational and adaptable new approach to reference services. Undoubtedly, the success of both the group and its projects is a consequence of ensuring that a group of librarians is dedicated to/responsible for these services.

Initial Outcomes

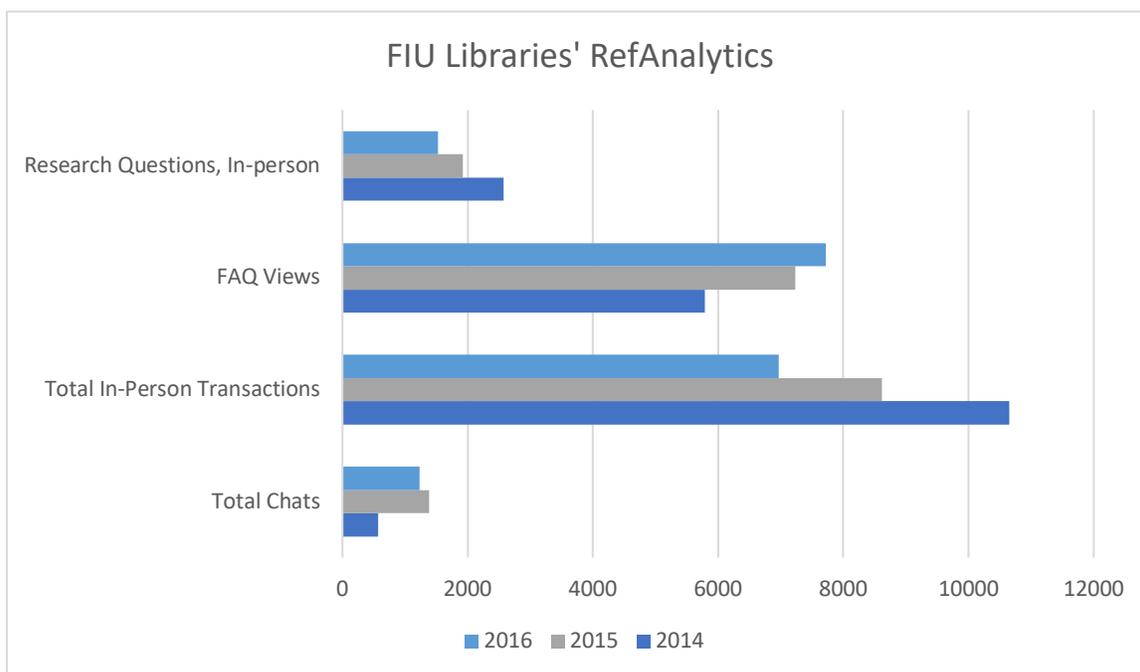
By systematically assessing all of our various reference services, we saw that reference services were not declining, but rather increasing in many areas. We were also able to improve several of these services based on the data analysis.

Make the invisible visible

How do you help seekers find answers? Make the invisible visible. We knew our chat statistics needed a boost, but usability testing told us that our chat services were not being highlighted enough and users found it difficult to find. Our old chat button aesthetically blended in with our website color scheme and looked like a flat drawing of a round chat bubble that read “Ask Us.” We piloted a new chat icon in July of 2015 that visually popped on the page and read “librarian online, chat now” when the service was available, and a bright blue icon inviting users to browse FAQs while we were offline. Similarly, a careful redesign of our LibAnswers virtual reference platform was guided by analysis of chat transactions and unmatched query analytics (where the system was unable to find the appropriate FAQ answer for the user’s question). Our previous LibAnswers page was text heavy, lacked visual elements or distinctive color schemes, and took too much scrolling to reach the bottom of the page. We used site analytics and social media aesthetics inspired by Netflix, Pinterest, and Instagram for the redesign. The page was stripped of

text in favor of visual icons of the leading question types to create a simple, elegant, visually focused, and intuitive page. This redesign greatly improved the patron's ability to "self-serve" and refined one of our primary unmediated access points to reference services.

< insert Figure 2. FIU Libraries' RefAnalytics Graph >



As a result of these changes, we saw immediate growth in chat and LibAnswers traffic. Although a significant amount of time is invested in the creation and maintenance of our FAQs knowledgebase, data on the use of the platform was never previously integrated into our reference usage statistics. Our Fall statistics were calculated using data from August through December. Chat statistics jumped from Fall 2014 with 570 transactions to Fall 2015 with 1,388 chats and a sustained increase in usage in Fall 2016 with 1,228 chat transactions. Similarly, our FAQ views rose from 5,787 in Fall 2014 to 7,230 views in Fall 2015 and finished Fall 2016 with 7,725 FAQ views. The comparison also brought to light that our LibAnswer's FAQ views (7,725) was actually 10% higher in the Fall of 2016 than our total in-person transactions (6,964) which include informational, directional, and research questions.

Be There When and Where They Need You

Connecting students working on research projects with the librarians to support them can involve a simple analysis of what research reference questions are asked and when they are asked. Our reference desk and chat statistics should inform website/online guide content, service availability, and usability design. In Fall 2016, 51% (630/1228) of all chat questions were identified as reference or research compared to only 23% (1,595/6,963) for our in-person transactions. The assessment of these statistics combined with reviewing chat transcripts lead to a departmental move to pilot servicing patrons via chat rather than in-person for our weekend reference shifts. Looking at our new reference analytics, we could see the questions we were receiving via chat were less quick and informational and more in-depth real-time research related than the questions received at the reference desk. Departmentally, we decided to invest our weekend hours to the service that was seeing the most “research help” related traffic while also better serving our distance and online population.

Implement a Cycle of Evaluation

The cycle of assessment and evaluation should not be seen as merely an annual event with an end and a beginning, but as an evolving framework or tool that allows you to continuously learn about your services, adapt to your patrons’ needs, and even help you better demonstrate your strategic role towards greater institutional or administrative goals. “Evaluation is an ongoing activity, part of the planning process, which assesses the effectiveness of current procedures and provides data that can help set the direction for future activities.”⁸ The evaluation cycle does not need to be hard or tedious, many of the third-party resources and platforms we subscribe to have analytics tools built into them, providing a wealth of assessment data points. Within the realm of collection

⁸ Danny P. Wallace and Connie Jean Van Fleet, *Library Evaluation: A Casebook and can-do Guide* (Englewood, Colo: Libraries Unlimited, 2001).

development and liaison responsibilities, taking advantage of click-through statistics for databases and resources can be helpful to inventory and analyze existing online collections and identify subject content gaps. Springshare's content management system (CMS) offers internal reporting tools to show detailed research guide usage, an important digital analytic that can determine project priorities. Similarly, their LibChat tools can allow for the surveying of chat transcripts for quality control and service standards.

Google Analytics, as well as module-level statistics from our CMS (Drupal), are the primary analytics sources for the FIU Libraries' main site (<http://library.fiu.edu>). Our analytics instance allows us to see what content/modules visitors are interacting with, the flow of traffic through our site, what devices and browsers our users are accessing our pages with, and more. User demographics and site behavior analytics were further supplemented with usability studies and focus groups. This compiled data led to a number of iterative changes to the site. Where we saw an increasing number of users were accessing the site via mobile devices and browsers, we knew we needed to make design decisions considering mobile first – our most frequently accessed content was simplified and stripped down, long pages were removed, and content consolidated. Similarly, the elimination of duplicated information, highlighting of popular and frequently accessed content, and revision of terminology to reflect more natural language for linked resources worked together to increase ease of use and discoverability.

The New Analytics Landscape

With determined purpose, our reference department is seeking “holistic” reference use data to better understand how reference services are being used and to improve the quality of the content library users encounter before they even get to one of our reference desks--either face-to-face or virtual. The online help guides we create and the FAQs we curate are the new face of reference

services in the library. By combining digital analytics data from these reference related websites, libraries can tie services and resources to outcome metrics to identify high impact practices and justify how they contribute to student success in their university. Digital analytics can be shared in such a way as to tell “your story” and explain the myriad of ways libraries make efforts to encourage self-sufficiency, critical thinking, and intellectual curiosity. We can mine data from reference analytics on question type and query analytics for the questions without direct match via auto-suggest to build ready-made content. By curating and integrating our resources in an online space that speaks to identified user profiles, we can connect and open lines of communication with our web users.

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