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Open Source Assessment of Academic Library Patron Satisfaction

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Article Title Page

Open Source Assessment of Academic Library Patron Satisfaction

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Katelyn Angell is a reference and instruction librarian at Long Island University, Brooklyn Campus. Much of this article is based upon her time as a reference librarian at Sarah Lawrence College in Bronxville, New York.

Structured Abstract:

Purpose – While academic libraries have often purchased proprietary software to assess patron satisfaction, the open source movement has generated high-quality software available free of charge. These tools are useful alternatives in an era marked by tremendous budget cuts familiar to many academic libraries. The purpose of this paper is to demonstrate the ability of open source software to effectively and affordably measure the quality of service at academic libraries.
Design/methodology/approach – The author's experience with using the open source tool LimeSurvey to administer a library survey over a three-year period serves as a case study for other institutions. A literature review contextualizes the history of patron satisfaction surveys within academic libraries and questions the lack of an open source presence. Popular proprietary survey software is reported as a viable but expensive option, leading to a detailed case study of Sarah Lawrence College's successful addition of open source software to its assessment procedures.
Findings – LimeSurvey is a flexible, customizable, and cost-effective tool for a small college library investing in querying its patrons for constructive feedback as a means of improving user experience.
Originality/value – This paper will be of value to any library on a fixed budget looking to assess patron satisfaction with resources and services. Very little literature currently exists on this topic, but as the open source movement continues to flourish this software can play an integral role in allowing libraries to cut costs but not indispensable patron feedback.

Keywords: Library surveys, Library user satisfaction, Academic libraries, Open source software, Library public services

Article Classification: Case study

For internal production use only

Running Heads:

Title: Open Source Assessment of Academic Library Patron Satisfaction

Assessing academic library services and collections is a shared responsibility between librarians and patrons. In order to ensure continued improvements in both of these areas, it is constructive for librarians to survey patrons on an annual basis. Both positive and negative feedback from students, faculty, and staff is integral to maximize user experience and justify continued internal and external support of the library. Prior to the invention and widespread use of computers, library assessment was limited to the protracted method of print questionnaires, time-consuming both to complete and evaluate. Advances in information technology stimulated the creation of both proprietary and free online survey tools, thus streamlining a library's ability to seamlessly collect, tabulate, and share rich, patron-generated quantitative and qualitative data.

The inception of the open source movement in the late 1990s (Open Source Initiative, 2012) precipitated the ubiquitous development of free computer software, with programs ranging in versatility from word processing to video editing to content management systems. The universal availability of source code in open source programs signified the ability of individuals and institutions to obtain, modify, and share open source programs without fear of legal ramifications. Relevance of open source software to academic libraries appears in Library and Information Science (LIS) literature as early as 2001 (Creech), with Central Washington University employing the operating systems FreeBSD to power the main library website and Linux to manage its database applications and proxy servers.

In 2009, the Sarah Lawrence College (SLC) Library began using the open source survey tool LimeSurvey to administer its annual Library and Computer Help Desk Survey. While there is a dearth of documentation of LimeSurvey in current LIS literature, there are many reasons that it could and should be utilized by academic librarians interested in learning more about their user

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communities. For example, LimeSurvey supports unlimited survey respondents and boasts 28 different question types (https://www.limesurvey.org/en/about-limesurvey/features). This flexibility combined with the software's free availability will appeal to libraries of all sizes unable or unwilling to commit to pricey proprietary programs.

The aim of this study is to investigate the potential of the open source movement to revolutionize patron satisfaction assessment procedures in academic libraries during an era of increasingly dramatic budget cuts. The successful experience of a small liberal arts college library's use of LimeSurvey over a four-year period demonstrates that although tightened budgets could reduce quantity of resources and services, quality can still be monitored and improved. While the SLC survey seeks patron feedback regarding six different library departments, the author's background in reference and instruction speaks directly to the relevance and appropriateness of LimeSurvey to public services librarians.

Literature Review

Although research reports that there is little evidence of usage of open source software to assess patron satisfaction, libraries have surveyed patron satisfaction levels for decades. Perusal of the database *Library Literature & Information Science Retrospective: 1905-1983* reveals that academic libraries have been surveying patrons and publishing their findings as early as the 1930s (McCrum, 1937). In 1938, the American Library Association's (ALA) College Library Advisory Board (CLAB), which precipitated the formation of the Association of College and Research Libraries, formally encouraged academic libraries to survey their patrons (Johnson, 1938). CLAB developed a plan to assist libraries in this endeavor both by creating a survey protocol and procuring consultants for interested libraries, which was approved and funded by ALA. A few years after the release of CLAB's survey protocol, Purdy (1942) identifies six

evaluative criteria culled from library reports and university library surveys published since the 1910s. Among these key criteria are "quantity, quality, and relevance of materials," "quantity and quality of library personnel," and "use of materials and services," all factors which continue to be measured in modern patron assessment procedures. All three of Purdy's criteria are highly relevant to the services that reference librarians provide to patrons, and their collective feedback on these matters assists us in better serving their information literacy needs.

Prior to the invention and widespread usage of computers, patron surveys were conducted via paper and writing utensil. While paper surveys certainly allowed librarians to solicit feedback on service quality and report findings back to their communities, this method harbored several prominent drawbacks. For example, the lack of computer technology presupposed slow, manual tabulation of survey data and the very realistic possibility of staff losing or misplacing surveys, thus compromising the integrity of the results (Jensen, 2009).

In the early 2000s, evidence of online survey utilization among libraries began to materialize in LIS literature, with surveys conveniently sent to patrons via email messages (Stoffel and Tucker, 2004). This technological advancement benefited librarians and patrons alike. Online surveys simplified survey distribution and evaluation for librarians and signified that patrons could participate from any location with Internet access.

In 2002, Gunn foreshadows the popularity of online surveys within the library community, presenting a comprehensive review of types of online surveys, pros and cons of their implementation, and survey design. Speaking chiefly to information professionals new to online survey construction, Gunn offers valuable insight on language and construction of web-based surveys, concluding that the low cost, ease of distribution, and potential for rich data analysis will result in the continued advancement and popularity of online surveys.

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Despite their reported benefits, however, online surveys also evidence a few salient drawbacks. In terms of confidentiality, surveys sent to a person's email address lack the privacy of paper surveys anonymously distributed. Additionally, a concern voiced in the early 2000s but still relevant today is the notion that not all library users possess the technological skills needed to complete a web-based survey (Shannon *et al.,* 2002). Thus, web-based surveys are biased in the sense that they are only accessible to people with the requisite computer knowledge, and presumably preclude the feedback of some of the library's patron base.

The development of online survey software spurred the concurrent introduction of reviews written by information professionals committed to sharing both the upsides and downsides of various web-based survey tools. From the beginning, the primary difference between many of these tools and the traditional paper survey is that the former cost money, while librarians could create print surveys very inexpensively. An early comprehensive review of six popular online survey sites reveals that all six charged a fee, ranging from SySurvey's 34p UK (around $0.50) per survey to Demographix's £500 (nearly $800) for a subscription (Winder, 2006). A few years after Winder's review, Marie and Weston (2009) identify and evaluate five different online survey tools from the perspective of school media specialists. In contrast to the previous article, all five featured tools are either completely free or offer a free basic subscription level. The authors selected KwikSurveys to use in their own user survey, citing as highlights the ability of the software to allow qualitative as well as quantitative questions and the instant tabulation of respondent data. Despite the fact that several of these tools are free, none of the five qualify as open source software, as users cannot freely access and edit source code.

In contrast to a protracted absence of academic libraries using open source survey tools, there are numerous examples in LIS literature of academic libraries employing popular

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proprietary software such as LibQual+® (Greenwood *et al.,* 2011; Hoseth, 2007). Sponsored by the Association of Research Libraries (ARL), LibQual+® is an online software package which measures the satisfaction of library patrons with services and resources. The bulk of LibQual+® is a 22-item survey composed of both pre-fabricated questions and space for institutions to generate their own questions. Survey responses are sent to a LibQual+® database, which processes the answers and sends the participating institutions reports on patron feedback.

Despite advantages of LibQual+®, such as ability for subscribers to compare assessment data with subscribers at similar institutions, it may not be a realistic option for many academic libraries for two primary reasons. First of all, LibQual+® has substantial administrative costs. The most recent price quote for LibQual+®'s registration fee is $3200 with an additional annual fee, a price which surely exceeds the budget of numerous libraries, especially those attached to small colleges (http://www.libqual.org/about/about_lq/fee_schedule). Next, the reported high level of employee time needed to evaluate results at the conclusion of a LibQual+® survey may not be feasible for understaffed and/or small libraries (Hoseth, 2007). A lack of at least one staff member trained in statistical programs such as SPSS can also present a roadblock, as knowledge of this software is extremely useful to the analysis of LibQual+® data. Thus, libraries with limited budget/and or staff might want to consider LimeSurvey as a viable option, as neither money nor advanced statistical or computer systems skills are needed for its successful application.

In addition to the curbing of vast financial expenditures, replacement of proprietary software with open source alternatives can tangibly benefit libraries in several other ways. Salve *et al*. (2012) defines nine distinct pluses of choosing open over proprietary software within the library environment. These advantages include ability to freely edit and share source code,

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independence from constraints imposed by commercial vendors, and reliability. Three types of software are explored in this article: integrated management library software, content management systems, and institutional repository software. Thus, open source products offer libraries the option of customizing their own software to best meet the needs of themselves and their patrons, completely unfettered by any restrictions imposed by vendors.

Another positive component of open source software lay in the autonomy of its developers. Free from the pressing demands of contractual employment at a conventional software firm, open source developers are volunteers who donate their time and skills because they believe in the community-focused goals of the open source movement (Setia *et al*., 2012). Their stakes are not in generating high financial returns, but rather in creating a first-rate, free product for anyone. Additionally, developers can pick and choose how much time they desire to spend on working on a project, expanding the potential to recruit the part-time, pro bono services of talented IT professionals. Librarians themselves can volunteer their creative input and web skills to help design products, allowing them the unique status of both producer and consumer.

The author of this paper is particularly interested in the curious lack of information on open source survey software, especially in light of the fact that open source and online survey tools have appeared in LIS journals for at least a decade. A search of *Library, Information Science & Technology Abstracts (LISTA)* using the official subject terms "library surveys" and "open source software" yielded only one result. The article in question does not pertain to a patron satisfaction survey, but rather describes a homegrown open source program which tracks print periodical usage statistics (Davis, 2009). On a related note, a search within the same database using the subject terms "library user satisfaction" and "open source software" resulted

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in zero hits. Employment of "LimeSurvey" itself as a search term brought up only one result, a brief but useful review of the product (Engard, 2009).

Judging by LIS literature alone it appears that LimeSurvey does not enjoy wide use in academic library settings, although it's worth taking into account that many libraries may use the product but not document their experiences. In in 2003, LimeSurvey is a PHP based open source software tool originally developed in Germany, although translations are now available in over sixty languages, signifying its potential to positively impact library assessment on an international level (Schmitz, 2012) LimeSurvey received a very encouraging review by the peer-reviewed journal *Public Services Quarterly* in 2009. Several features of the software were highlighted in this review, including its user-friendly interface, multitude of options to view and organize data, and capability to create unlimited surveys (Engard, 2009). The only possible pitfall is discomfort librarians without knowledge of MySQL databases might experience during the installation process. However, the availability of rich documentation offered by LimeSurvey can ease the process for librarians without a computer systems background. Collaboration with the library's information technology department can also ease any installation or other software snafus.

At this point in time, the most current statistics accessible on the LimeSurvey website report that over forty colleges and universities use this tool, thirteen of which are located in the United States (http://www.limesurvey.org/en/component/content/article/1-general-news/193-ask-limesurvey-which-universities-are-using-limesurvey). This list, however, is over two years old and does not include other possible recent additions. Additionally, the list does not specify potential library involvement. One institution not denoted in this sampling is Monmouth University, which reported using LimeSurvey in the mid-2000s, when it was known as

PHPSurveyor (Hsieh and Holden, 2008). Monmouth's library surveyed its patrons on two separate occasions using this software in an attempt to gauge the success of a wireless laptop library lending service. While the article does not speak to positives or negatives associated with the software in question, it is the earliest article located in which academic librarians document usage of LimeSurvey in their practice.

There are a few other instances in which LimeSurvey appears in academic librarianship. A recently published book on open source software in libraries reports that Indiana University South Bend (IUSB) has used LimeSurvey since 2008. At IUSB, however, LimeSurvey functions not to assess library services, but rather to obtain the consent of students in library instruction classes to apply pre- and post-test data to librarians' scholarly research endeavors (Engard, 2010). In addition, LimeSurvey is used to collect statistical data on reference transactions. This data can extend to queries recorded by librarians on iPads during roaming reference shifts (McCabe and MacDonald, 2011). Each reference transaction is entered into LimeSurvey software by the roaming librarian on duty, noting particulars including query type, time, and location of the interaction. The software is located on the university's server, signifying the knowledge gained from the transactions is safely inputted and protected.

As noted earlier, application of LimeSurvey is not limited to the United States, an important factor to consider in terms of advancing scholarly communication on an international level. Melo and Pires (2012) detail a study in which academic library users at public universities in Portugal were surveyed to determine how likely they were to pay for electronic library services, an important topic closely related to reference and instruction. A questionnaire developed with LimeSurvey was the library's method of collecting relevant data from library patrons. Interestingly, although the researchers ultimately chose to administer an online survey in

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their study, this survey was pre-tested using a print version. Along the same lines, the researchers noted in their report that their responses could be negatively influenced by a selection bias, speculating that patrons who relied most on their digital resources were therefore more likely to respond to the survey than less frequent digital users. This is a valid concern for academic reference librarians committed to surveying all of their patrons, not just computer savvy individuals.

When considering possible reasons for using proprietary survey software such as LibQual+® instead of open source software, another major issue is that librarians may feel open source options are not yet as streamlined or user-friendly as well-established proprietary options. Raza and Capretz (2012) surveyed 72 open source software developers and learned that 70% of respondents disbelieve that usability should be a top concern in terms of creating software. This lack of focus on the end user differs from proprietary software, which is developed with the end user in mind and is generally tested extensively prior to its public release. Another concern is that although one does not need to pay licensing fees to use open source software, there are some initial costs to consider. For example, the library might need to purchase additional server space or pay to hire or train employees to capably maintain the product (Blowers, 2012). Despite these caveats, the open source movement continues to flourish and develop, and it is reasonable to surmise that an emphasis on the designer over the end user's preferences and needs is waning.

Outside of the academic library, there is evidence that open source survey tools are currently being used across a broad spectrum of professional fields. Articles detailing successful applications of open source survey software appear in journals ranging in subject from medicine to business to economics. Among these tools, LimeSurvey surfaces most frequently within academic literature. To begin with, there are multiple examples of researchers achieving success

with LimeSurvey within the medical profession. Terry *et al.* (2011) chose LimeSurvey to query 340 employees at a hospital to measure their experiences with and opinions about providing pediatric home-patients with medication access. Another recent health care study, conducted by Randelli *et al.* (2012), uses LimeSurvey to gather opinions of orthopedic surgeons on the best treatments for complicated shoulder problems. These authors reported on several highlights of LimeSurvey, including its abilities to allow respondents to remain anonymous and to send reminder emails only to those invitees who had not yet completed the survey.

Economists are also incorporating LimeSurvey into their research methodologies. Horton *et al.* (2011) highly recommend LimeSurvey to economics researchers interested in conducting online labor market experiments. Emphasizing LimeSurvey's potential to appeal to survey administrators from all walks of life, Horton writes that the software, "already offers an excellent interface, sophisticated tools and, perhaps most importantly, a team of experienced and dedicated developers as well as a large, non-academic user base" (p. 423). This versatility on LimeSurvey's part is confirmed by its continually expanding presence within survey dependent endeavors. Lockyer and George (2012), interested in exploring obstacles preventing the entrepreneurship of women in an English county, devised a 44-item questionnaire within LimeSurvey. The questionnaire was completed by 100+ participants, and led to involved follow-up interviews with five respondents. This study demonstrates LimeSurvey's potential to transcend its identity as a simple data collection tool, signifying that it can assist in rectifying social and professional inequalities.

Although LimeSurvey does seem to have the lion's share of the open source survey market, an open source survey tool called Nsurvey is also sometimes utilized within various disciplines. Neill and Richard (2012) discuss a marketing project exploring usage of Intranet

portals, in which an online questionnaire is created with Nsurvey and then administered to 275 students and staff at a New Zealand university. In addition, Nsurvey was also the software of choice for business educators investigating student perceptions of faculty based upon professional email address selection (Livermore *et al*., 2010). The survey was sent to over 1000 students, displaying the software's potential to survey large numbers of students and faculty within higher education initiatives.

In order to complement this extensive review of historic library survey practices and the availability of open source software, it is important to offer evidence of successful first-hand application of LimeSurvey by an academic library.

Case Study: Annual Survey Process at Sarah Lawrence College Library

For three years the author of this paper, a reference librarian, served as a co-administrator of the Library and Help Desk Annual Survey, a patron satisfaction survey sent to faculty, staff, and students every spring semester at SLC. The survey is conducted with the open source tool LimeSurvey, which is freely available and simple to install on a local web server. In order for other institutions to reap the benefit of this valuable product, a detailed outline of the annual survey process at SLC will explain the experience of a small liberal arts college's utilization of LimeSurvey to assess its services. As a side note, the author was not employed at SLC during the library's initial implementation of LimeSurvey; thus, this case study will read primarily as a process-oriented approach. SLC used the highly popular SurveyMonkey up until 2009, whereupon it was decided that the library would branch out and try an open source option instead. The author began working with LimeSurvey in 2010, SLC's second year using this platform.

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Located in the New York City suburb of Bronxville, SLC's library serves 1300 undergraduate and 340 graduate students, along with faculty and staff (http://www.slc.edu/about/index.html). The library is divided into six main departments: Reference, Access, Technical Services, Music, Visual Resources, and Computer Help Desk. The first step of the survey process is the collection of survey questions from the six department heads by the survey administrators. Once the department heads generate their questions and submit them to the survey administrators, the questions are inputted into LimeSurvey. Each administrator has a separate LimeSurvey account with their own user name and password, and the survey is fully accessible from each account. The questions asked by the Reference department in the 2012 survey are available in the appendix of this paper.

LimeSurvey offers a multitude of answer options, including yes/no, multiple choice, and long free-text. Additional question types, such as the "array" option, allow for sub-questions as well, further illustrating the flexibility offered by LimeSurvey. There are no limits as to how many questions can be included, and there is no cut off point for number of survey participants. Survey responses can be exported from LimeSurvey to programs such as Microsoft Word and Micrsoft Excel, which is a necessity when the administrators begin to analyze survey results. LimeSurvey creates colorful charts and graphs of survey responses, which are useful to department heads as they write their portion of the follow up report distributed to the SLC campus community. These charts and graphs can be accessed as PDF documents, ensuring streamlined document sharing and perusing. One of the most valuable features of LimeSurvey is that it allows survey administrators to save and copy surveys. This capability saves ample staff time and energy, as the survey administrators need only to copy the previous year's survey and make minor adjustments as requested by colleagues. There is no annual reinventing of the wheel;

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merely refilling the tire with air. Usually this updating process takes the survey administrator no more than a couple of hours.

Another plus of LimeSurvey is it adaptability in terms of submitting a survey. If respondents do not have time to fill out the entire survey in one sitting, they are able to save their incomplete responses and log in at a future time to finish and submit their answers. However, it is important to note that a number of SLC patrons reported that their Internet connection timed out if they left the survey open for too long, compromising all of the data they had inputted thus far. Once the survey administrators learned of this issue a note was added to the introductory page of the survey recommending that patrons do not leave the page unattended for more than ten minutes. This precaution was later shown to help avoid undesired time-outs.

In line with patron privacy policies championed by libraries, LimeSurvey allows all respondents to remain fully anonymous, as it assigns each invitee a token number as a stand-in for their replies. Survey invites can be emailed directly from LimeSurvey with the option to send additional periodic reminder emails to persons who have not yet completed the survey. SLC survey administrators generally send out three reminders over the course of the survey. The token system is structured such that invitees who have already completed the survey are not spammed with superfluous reminders.

Once the survey is over results are shared with each library department, which collaboratively writes a summary of both the data and steps they will take in the ensuing year to improve services and resources. The department head submits their recommendations to the survey administrators, who both edit and combine the departmental write-ups into a comprehensive report. Department heads are able to view the report, which when approved is

released to the SLC community. The report is posted to the library website, and can be freely viewed by all.

Limits

While LimeSurvey has proven a cost-efficient and robust user satisfaction tool for the SLC library, there are a few limitations to the software worth mentioning. To begin with, LimeSurvey and other open source software tools lack both the scholarly and institutional credibility enjoyed by proprietary software such as LibQual+®. Its infrequent appearance in the LIS body of literature prevents it from gaining the recognition needed to increase its popularity among academic librarians. Such sparse promotion within scholarly communication signifies that at this point in time users of these open source tools are operating rather in isolation, a factor which could serve as a possible detractor to survey administrators.

Next, while subscribers of LibQual+® are easily able to compare their survey data with the results of similar institutions, a feature useful to both scholarly communication and accreditation requirements, this functionality is unavailable to LimeSurvey users. Hopefully, the future of open source software tools used by libraries will eventually usher in these benefits, but at this point in time users of LimeSurvey lack the helpful comparative capabilities of LibQual+® subscribers.

Lastly, users of LimeSurvey do not enjoy the robust level of customer service options available among proprietary alternatives. For example, LibQual+® offers extensive training programs on topics ranging from survey introduction to administration to results. LimeSurvey, on the other hand, does offer free support documentation, but as an open source product cannot possibly offer the same type of customized, individual assistance as a service operating on subscription money.

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Future Directions

The present study focuses on the experience of a very small college (n=1640) with the LimeSurvey software. The 2012 survey yielded a total of 643 responses, a figure easily managed by the survey administrators. Little information is publicly available on the experiences of larger college and university libraries with LimeSurvey. Such a study would well complement the experiences of the SLC Library, and allow greater conclusions to be drawn about the overall feasibility and utility of LimeSurvey as a patron assessment tool among institutions of varying sizes.

Another investigation worth pursuing would be a study comparing application of an open source and proprietary survey tool at the same educational institution. For example, an academic library could use open source software one year and proprietary software the next to administer its annual survey, documenting their experiences in order to contrast the positives and negatives representative of each tool. The primary goal of this endeavor would be to ascertain whether open source software could competently meet the assessment needs of the library during periods of economic hardship.

Lastly, there is great potential for individual library departments to use LimeSurvey to assess their own specific resources and services. For example, reference librarians interested in surveying distance learners on their satisfaction with virtual reference services as described by Alewine (2012) could use LimeSurvey as their software platform of choice. Additionally, reference librarians looking to evaluate and improve reference desk interactions (Robbins and Daniels, 2001) could similarly find LimeSurvey a versatile and intuitive survey product.

Despite the current lack of open source software usage among academic libraries in patron assessment procedures, this study serves as an object lesson to illustrate the financial and

staffing benefits of exploring non-proprietary survey alternatives. While the published accounts

of LimeSurvey within user satisfaction evaluation are few, the software's potential to transform

and modernize survey procedure is both timely and well worth piloting.

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Appendix

Reference Department 2012 Survey Questions

1. Did you know that research assistance is available to you from reference librarians? (Yes/No)

2. Have you had a one-on-one consultation with a SLC reference librarian? (Yes/No)
If yes, rate how useful you found this consultation. (Useful/Somewhat Useful/Not Useful)

3. Did your first year studies class come to the library for a library instruction session? (Yes/No)
If yes, rate how useful you found this class. (Useful/Somewhat Useful/Not Useful)

4. Please provide any comments or concerns you have about library instruction here. (Open-ended question)

5. How would you rate the library's electronic resources (online databases)? (Good/Satisfactory/Poor)

6. Have you had trouble accessing the library's resources from off-campus? (Yes/No)

7. Name the three SLC library databases that you use most. (Open-ended question)

8. Please address any comments or concerns you have about the library's electronic resources here. (Open-ended question)

9. What areas of the collection would you like to see improved? (Open-ended question)

10. What reference services do you think are most important? Options: one-on-one consultations, after-hours reference, online chat reference, and reference desk. (Rank from 1-4)