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Article

Assessment on the Go: Surveying Students With an iPad

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Abstract

Ongoing assessment in academic libraries, particularly the measurement of student perceptions, preferences, and satisfaction, can be a challenge to schedule and execute. This paper describes a pilot project at Georgia State University Library that combined assessment with the portability of the tablet computer. A tablet computer--in this case, Apple's iPad--loaded with survey software became a digital clipboard with the added benefit of automatic data compilation. Subjects were surveyed quickly in the library buildings, maximizing convenience for both subjects and researchers alike. The result was a model that other libraries, as well as campus student services divisions and classroom instructors, can easily adopt. Methodology, benefits, lessons learned, and ideas for future projects are discussed.

Background and Approach

During the fall 2010 semester, the Georgia State University (GSU) Information Systems & Technology department provided GSU Library with 10 Apple iPads. The plan was for librarians to use the iPads to assist instructors and students from Freshman Learning

Communities who were participating in an iPad pilot program. At the conclusion of that pilot, GSU Library was allowed to keep the iPads in order to explore additional projects. In late 2010, interested librarians had the opportunity to request the use of an iPad in support of their teaching, scholarship, and/or professional activities during the spring 2011 semester. The assessment librarian and associate dean brainstormed an idea to use iPads for "guerrilla-style" assessment--approaching unsuspecting potential subjects, surprising them with an online survey, and asking them to complete the survey on the spot. With the support of the dean of libraries, the first "assessment on the go" using the iPad was piloted in early 2011.

GSU Library continually seeks innovative ways of assessing the perceptions, preferences, and satisfaction of its students. While the iPad itself prompted this particular project, the identified needs and ideas behind this type of assessment predate the advent of the iPad. Assessment in higher education, particularly in academic libraries, is an ongoing challenge. Libraries can tally website hits, usage statistics for online databases, circulation figures, door counts, and reference questions answered. These numbers do little to show how and to what extent libraries impact learning, teaching, and scholarship. As budgets are cut, libraries are being asked to provide more data that show their impact and relevance. Measuring user populations' satisfaction and gauging their preferences through various assessment methods not only help libraries demonstrate their impact and relevance, but the data collected also can inform decisions related to resource allocation, staffing, and overall strategic goal-setting.

One of the major challenges of library assessment is choosing the right methodology. Large-scale surveys are worthwhile, but developing and testing the survey instrument and then analyzing the results can be time-consuming for researchers. If administered too frequently, surveys can leave the campus community with survey fatigue and researchers with lower response rates. Surveys administered on paper or online are easy for potential subjects to ignore or delete. Focus groups and individual interviews are difficult to schedule, particularly with busy students, and can be time-intensive for researchers. GSU Library hoped to address some of these ongoing challenges by adding a novel, portable, and useful device—the iPad—to the assessment toolkit.

Benefits

In an attempt to determine whether the iPad had viability as a data collection tool, the researchers developed a plan to conduct an unscientific pilot study to test the iPads as digital clipboards. The iPad presented a fresh approach to data collection for library researchers, with the potential for three main benefits over traditional assessment methods, such as online surveys or face-to-face, paper-based polling. The first anticipated benefit was the novelty and appeal of the device, which would encourage students' interest in the assessment activity. It was surmised that the hands-on, tactile aspect would draw students into the process of data gathering, especially if the survey was brief and focused.

The second potential benefit was the portability and lightweight quality of the device, which would enhance the “man on the street” or “student on the quad” approach. It was believed that the portability of the iPad would allow the researcher to meet students where they gather naturally, as opposed to passively pushing out an online survey or trying to schedule in-person appointments. The iPad had a principal benefit over a smart phone or hand-held Internet device in that the size of the screen was considerably larger while still being portable, allowing for more displayed content and interaction between the researcher and subject.

Finally, software used along with the iPad would compile survey results automatically, which would be more efficient for the researchers than manually compiling hashmarks obtained with a pencil and a clipboard. It was important that the software, or apps, selected be intuitive on the front end while providing enough flexibility, options, and usefulness for the researchers on the back end.

Literature Review

The market research method of approaching potential survey takers in a neutral location resulted from market researchers’ desire to save money and time. Market researchers “conducted [surveys] in supermarkets, discount stores, train stations, and other enclosed areas which provided concentrations of people” (Gates & Solomon, 1982, p. 43). By meeting people in a central location, market researchers could collect high-quality data while avoiding the expense and time commitment of door-to-door interviews with subjects (Bush & Hair, 1985). Beginning in the 1960’s and gaining popularity in the 1970’s and 1980’s, the mall-intercept method was developed, with the shopping mall as the central location (Bush & Hair, 1985; Gates & Solomon, 1982).

During the rise of this face-to-face method, researchers conducted studies, for example, to determine whether mall-intercept survey results could accurately inform direct-response marketing efforts (Lautman, Edwards, & Farrell, 1981), and to determine whether frequent mall shoppers skewed the results of mall-intercept polls (Dupont, 1987). Over the past few years, the market research literature has reflected a concern about the quality of face-to-face market research as compared to online surveys and polls. Manfreda, Bosnjak, Berzelak, Haas, and Vehovar (2008) analyzed other studies that compared response rates from Web-based surveys to response rates of at least one other survey delivery method. Web survey responses were, on average, eleven percent lower than the other methods investigated. In their study of face-to-face survey responses as compared to online survey responses, Heerwegh and Looseveldt (2008) concluded that responses to Web surveys were of poorer quality and, overall, less sufficient than responses to surveys conducted face-to-face.

In a recent report on how the mall-intercept method has adapted in response to technology, market research firm Olinger Group decided to use iPads rather than paper surveys to poll 52,000 shoppers in malls across the country. The firm completed its anticipated four-week project in three weeks, a shorter timeframe they attributed, in part, to the iPad's “'cool factor'” (Horovitz, 2010, para. 5) which attracted participants.

In the classroom, faculty and students have used tablet computers since they were introduced in the early 2000's. Sneller (2007) described how tablet computers in the classroom can promote student engagement and communication. Kowalski, Kowalski, and Gardner (2009) had students use their tablet computers as survey response tools in order to gauge student understanding and learning. Using tablet computers connected to a wireless network, Enriquez (2010) created an Interactive Learning Network (ILN) for students. Classes with the ILN model saw better class attendance and a higher average quiz score.

Beyond the face-to-face classroom, tablet computers have potential as data-collection tools in the field. Shortly after the iPad debuted, New Media Consortium's Director of Research Keene Haywood (2010, para. 18) considered whether the iPad was the perfect "mobile field device." In July 2010, Duke University planned to equip students in the Duke Global Health Institute with iPads. The Institute believed the iPads would "increase research efficiency in the field by allowing students in low-resource settings to capture more data using one device than the traditional methods of data collection" (Schaffhauser, 2010, p.1).

Bhaskaran (2010) recently weighed in on the benefits of using iPads for survey research, but little has been written about the use of tablet computers as mobile assessment devices. What literature does exist primarily relates to the healthcare professions. Main, Quintela, Araya-Guerra, Holcomb, and Pace (2004) presented a study that compared the administration of patient exit surveys using tablet computers versus paper and pencil. In another study, breast cancer patients were asked to complete print surveys and online surveys via tablet computers, and the survey results were compared (Abernethy et al., 2008). An additional mention in the healthcare literature was a recent project at the Duke University School of Medicine. The white coats worn by doctors in internal medicine were modified to hold an iPad for easy access while they made their rounds gathering patient information and engaging in research. As part of the project, participants completed weekly surveys about their experiences to determine whether the iPad "[improved] the quality of medical education and clinical care by harnessing new technologies [they] thought would help with information gathering and clinical decision-making" (Perez, 2011, para. 2). Preliminary study results showed "the iPad is useful" for accessing resources online (Perez, 2011, para. 3).

One could draw some comparisons between health care and library environments. Both serve users who often have a specific need or purpose within a facility designed for that need or purpose. Like the health care professional, the librarian might use the tablet computer while making rounds, assessing information needs of users and providing assistance. Some libraries have experimented with a practice called "roving reference," assisting students and other library users at their points of need: in the learning commons or group study spaces, at computer workstations, or in the book stacks. As the tablet computer continues to gain prominence in the marketplace and on campus--and gets more powerful, smaller, and lighter--new possibilities for services to library users, patients, and students will emerge.

Methodology of the First Pilot Study

A two-question survey was designed to pilot the iPad as a survey delivery device in GSU Library. The first survey question was "Why did you come to the library today? Please choose the primary reason." Ten response options were listed in alphabetical order, and survey takers were allowed to select one option. The tenth response option was "other," with a text field in which survey takers could enter their own explanations. This question was included because the library is extremely busy, with an average daily door count of 10,000 during a typical semester. The door count data show heavy use of the building, but the library has little means of finding out what visitors do while they are in the buildings. The second survey question was "What is your major?," which was an open-text field. Survey takers were asked to indicate major courses of study so that their majors could be mapped to the respective majors of library visitors during the same time periods. The library requires GSU affiliates to swipe their campus ID cards at turnstiles at the library entrances, and selected demographic information, including major, is collected along with each visit. Asking survey takers about their majors allowed for comparing the representativeness of the sample population to the visiting population as a whole.

The researchers wished to determine the best format for delivering a survey via the iPad, so the survey was developed using two different programs. The first version was developed using Google Forms, an option available through Google Docs[1]. Google Forms was selected because it is free, and the assessment and staff development librarian wished to test it based on anecdotal recommendations from colleagues. The second version ran on Polldaddy for iOS, Polldaddy's free app for iPad and iPhone.[2] At the time of the pilot, Polldaddy for iOS was one of very few free and fully-developed survey apps available through the iTunes Store.

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[1] See Google Docs for more information on Google Forms,

http://www.google.com/google-d-s/forms/.

[2] See the Polldaddy for iPhone and iPad page for more information,

http://polldaddy.com/iOS/.

Figure 1. The First Pilot Survey as Designed in Google Forms

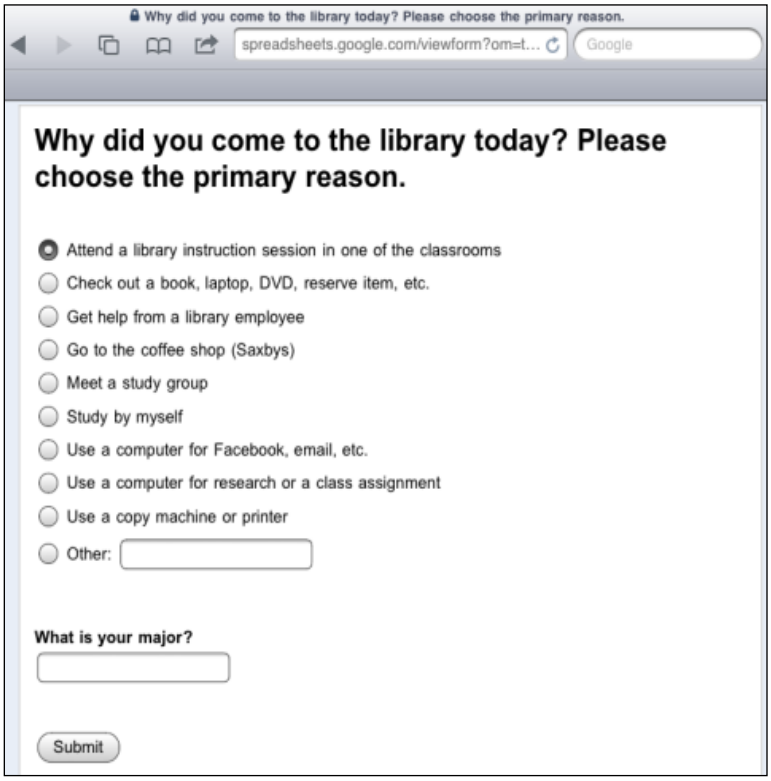
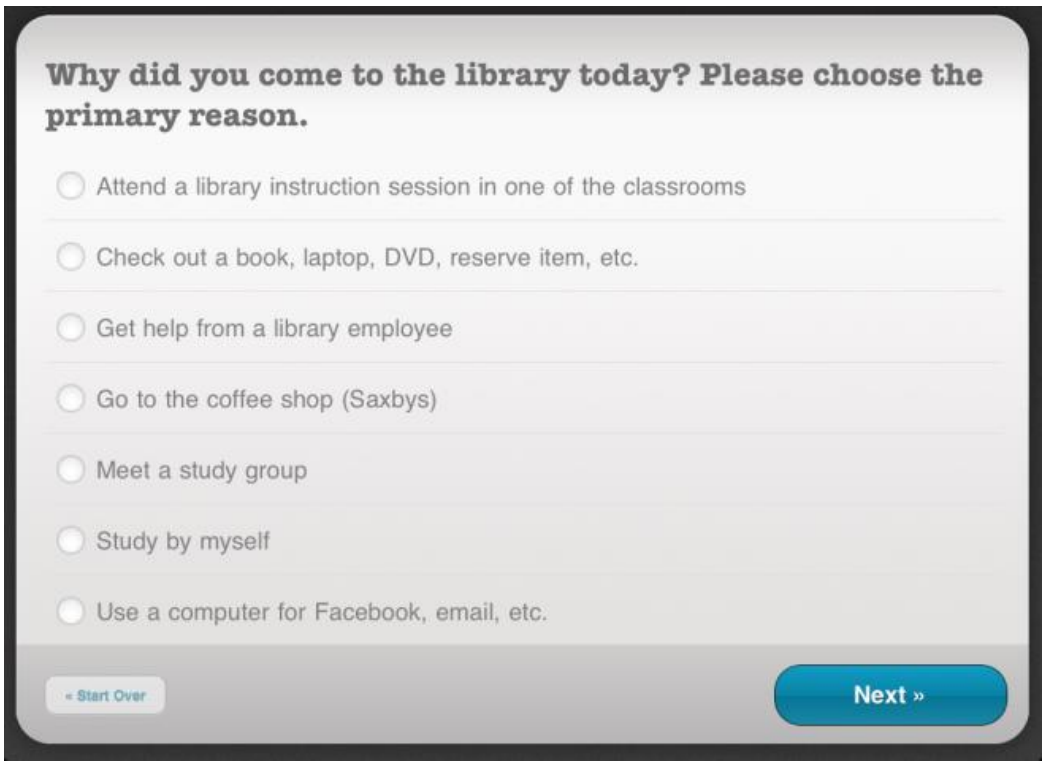


Figure 2. The First Pilot Survey as Designed in Polldaddy for iOS



Both programs require users (in this case, the researchers) to set up free accounts at their respective sites by creating a unique username and password and supplying an email address. Once an account is established, the user can begin creating surveys. Google Forms lists seven question types from which to choose, including multiple choice with one response; multiple-choice with multiple responses (checkboxes); and rating scale. The tool is spreadsheet-based, with a 400,000 cell limit for each spreadsheet. The exact numbers of survey items and survey responses allowed vary according to the numbers of survey items and responses solicited. Survey responses can be accessed and analyzed only by logging into the password-protected Google Forms account.

Polldaddy's question options include open text (one line or multiple lines); multiple choice with one response; multiple-choice with multiple responses (checkboxes); rating scale; and several text boxes for particular data like name and address. Because it is designed specifically for surveying and polling, Polldaddy offers a few advanced features such as simple branch logic and an option for setting a survey's close date. Polldaddy's pricing structure is based on numbers of surveys and survey responses. For this project the free account was chosen, which allows for surveys consisting of up to ten questions and 100 total responses per month.[3] Just like Google Forms, survey responses can be accessed and analyzed only by logging into the password-protected Polldaddy account.

In the project proposal, the assessment librarian nicknamed the plan "guerrilla-style" assessment—approaching unsuspecting potential subjects and surprising them with a survey. The plan involved the assessment librarian walking through the library buildings for approximately 20 minutes per day each day for five weekdays, and asking individuals to complete a two-question survey about why they were in the library that day. Over the five-day period and at varying times between 9:00 a.m. and 4:00 p.m., a total of 100 students were asked to take the survey. Ninety-three students completed the survey. The assessment librarian alternated between using Google Forms and Polldaddy. The methodology was unscientific. Subject selection was biased and based on students who were in relatively busy areas of the library, as opposed to designated quiet areas, so as not to disturb students engaged in silent study. Additionally, the assessment librarian conducted the survey during her regular work hours, which did not include evening or weekend hours.

Findings From the First Pilot Study

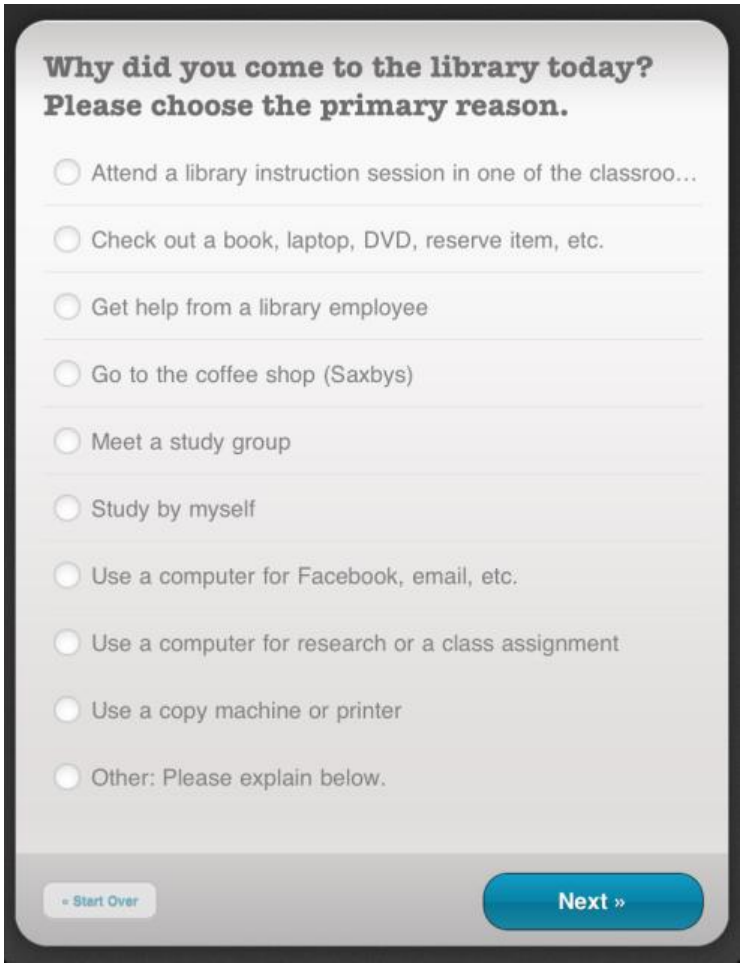
Polldaddy for iOS was a great option for this type of assessment. The layout and design are optimized for the iPad's screen, and survey results are loaded offline. Because an Internet connection is not required to administer a survey, the researcher has more flexibility in location of survey administration. Once the researcher is finished collecting results, the app provides a one-touch option to upload the results to the researcher's Polldaddy account, at which point an Internet connection is required. A po-

[3] See Polldaddy's account options for more information, http://polldaddy.com/pricing/.

tential drawback is the limit of survey responses allowed through the free account: 100 per month. This was not an issue during the pilot study, but it could become problematic with multiple surveys running simultaneously within one account. The free account also prevents users from exporting survey results, which is a desirable feature in survey and polling software. Since the pilot study involved only a brief survey, this was disappointing but not a major drawback.

Another downside to the Polldaddy app was, ironically, the interface optimized for the iPad. While the display is appealing and easy to read, it is not customizable. During the pilot study, this affected survey readability for two reasons. When viewing the survey in the iPad's horizontal (landscape) display, survey takers could not see all ten response options without scrolling down, and there was no indicator that scrolling was necessary. In the iPad's vertical (portrait) display, one of the response options was cut off due to its length, and an ellipsis displayed in place of the missing text.

Figure 3. The First Pilot Survey in Polldaddy for iOS with Vertical Display Issues

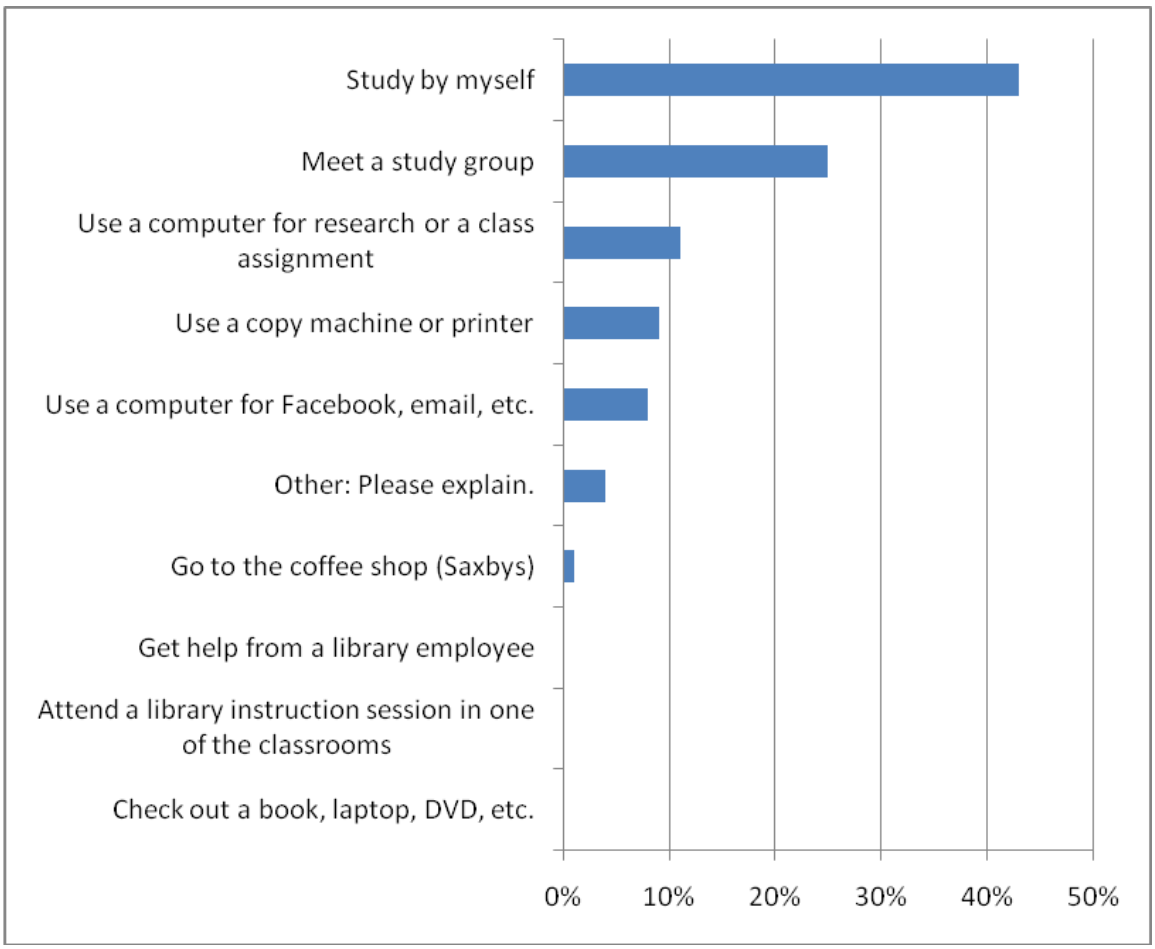


Since the app display is sized for the iPad, survey takers cannot zoom in or out for a larger or smaller display, which is a notable feature of the iPad.

Google Forms also worked well for brief surveys on the iPad. Because it is Web-based, survey takers could zoom in or out for improved readability. A major drawback of Google Forms was that it does not collect data offline. A user must be connected to the Internet in order to complete the survey. This was an issue in the library during peak usage times. The wireless network was at capacity during certain times of the day, and the signal was lost on a few occasions.

Findings from the pilot showed that the majority of students who completed the survey (43%) came to the library to study by themselves. After that, 25% percent of students came to the library to meet a study group, and 11% came to use a computer for research or a class assignment. It should be noted that zero respondents indicated that the primary reason they came to the library was to check out materials, attend a library instruction session, or get help from a library employee.

Figure 4. Results of the First Pilot Study

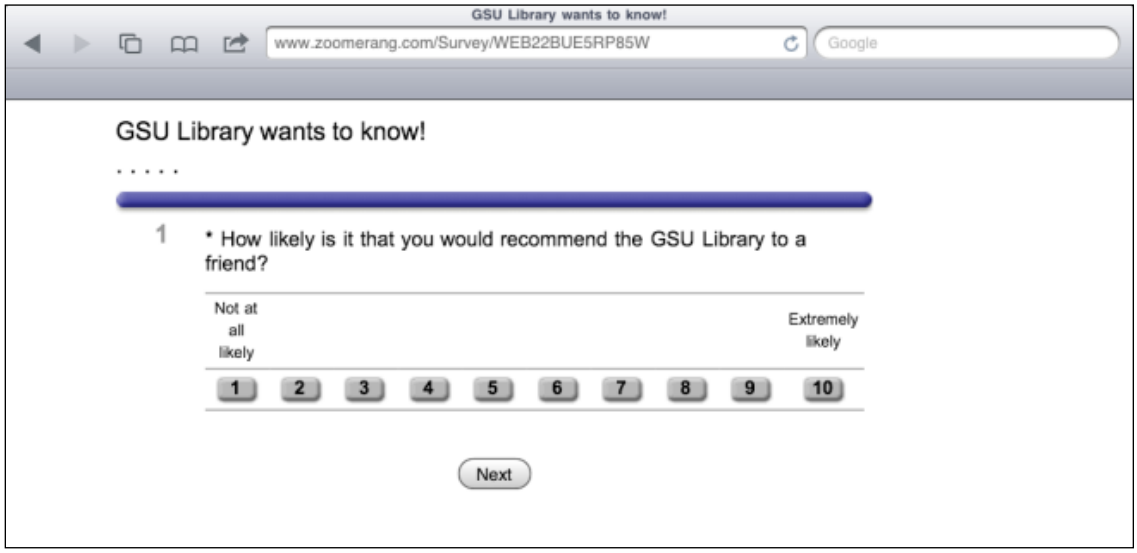


The major courses of study most frequently recorded on the survey were Biology, Managerial Science, Economics, Nursing, and Exercise Science; however, the list of majors was diverse with no one major claiming a large percentage of responses. Compared to library visitor data from the same five days, students in Biology, Psychology, Accounting, Marketing, and Journalism visited the library most frequently.

The Second Pilot Study

An additional pilot study was conducted based on the customer satisfaction measurement strategy outlined in *The Ultimate Question* by Fred Reichheld.[4] The survey administered in the study consisted of one mandatory question: "How likely is it that you would recommend the GSU Library to a friend?" Figure 5 shows the question and response option, a 10-point Likert scale, with one being "not at all likely," and 10 being "extremely likely."

Figure 5. The Second Pilot Survey in Zoomerang



Survey takers who chose a rating from one to seven were presented a second question: "How could the library improve to make you rate us closer to a 10?" This precise question branching, or skip logic, based on response is not available in Google Forms or with

[4] Reichheld, F. (2006). *The Ultimate Question: Driving Good Profits and True Growth*. (Boston: Harvard Business School Press).

rating questions in Polldaddy, but it is available in Zoomerang.[5] The library currently subscribes to Zoomerang for Web-based surveying, so Zoomerang was used to develop this survey. Only survey takers choosing a rating of one through seven on question 1 would see question 2.

The methodology was basically the same as the first pilot study. The assessment librarian walked through the library buildings for approximately 20 minutes per day each day for five weekdays at various times between 8:00 a.m. and 2:00 p.m. Responses were solicited from 66 students, and 59 students completed the survey. The average rating given in response to question 1 was 8.51. Nine students left suggestions for improvements that included upgrading the wireless network, providing more student computers, and "having more help available in finding stuff."

Discussion and Ideas for Future Projects

Results from the two pilot projects showed that the iPad's portability and user-friendliness make it an ideal device for guerrilla assessment. One student completed the survey during an elevator ride; other students completed the survey while waiting for the elevator; and another student completed the survey while the assessment librarian held the iPad. It was apparent that some students had never used an iPad when, for example, they paused at the open-ended question with no obvious way to key in a response. Interestingly, however, only four students asked how to use the device. The overwhelming majority of students intuitively tapped the screen and figured out what to do.

Overall, students did not seem disturbed or annoyed by a librarian asking them to complete a survey. Possible reasons include that the survey was very brief; students found it difficult to ignore the face-to-face solicitation as compared to an email invitation to complete a survey; and the "iPad factor." The iPad definitely piqued students' interest and indirectly served as an incentive for them to complete the survey. Students asked questions about the iPad--"is this an iPad?"--and wanted to talk about their own experiences using an iPad or plans to purchase a tablet device. For example, one student commented that scoliosis prevented her from carrying a laptop around campus, and she was interested in buying a lighter device like a tablet computer.

Based on the results of the pilots, GSU Library will continue to use the iPad for brief, targeted assessments. When large numbers of responses are expected during a month, Google Forms will be the primary surveying and data collection program due to the large numbers of responses it allows. Google Forms' screen zooming capabilities also are beneficial to some survey takers. Surveys will be administered in Polldaddy when the surveys are very short and will display well. Polldaddy also will be the primary survey software used when there are issues with connecting wirelessly to the Internet, since Polldaddy collects responses offline. When more sophisticated features are

[5] See the Zoomerang site for more information, http://zoomerang.com.

needed, the library will rely on Zoomerang. Zoomerang includes a number of customization features and survey-building tools, even as part of the free account.[6]

Upcoming studies include usability testing and preference analyses for the new mobile library website and the redesigned Special Collections & Archives Department website. These studies will rely on an iPad along with Usabilla, a usability testing program that generates heat maps based on user activity on a Web page.[7] Also under development is an iPad survey that will be administered to incoming freshmen onsite at new student orientation. First-year students will be asked about their social media preferences and use in order to inform activities and decisions related to the library's presence in and utilization of various social media. The associate dean plans to take an iPad into the academic departments to survey library users and non-users. In the future, brief surveys similar to those described here will be used to validate results of longer studies and focus groups. Another future project under consideration is using tablet computers with audio recording apps to capture voice interviews with subjects, pointing the way to additional forms of ethnographic research.

Assessment presents ongoing challenges, but also opportunities, for libraries. Libraries focused on continuous improvement need data to inform their decisions and validate or disprove their assumptions. Technological advances provide opportunities for libraries to assess more frequently and more easily, while lessening some of the challenges that can accompany assessment. As hardware and software designers and developers work to create lighter, faster devices with increasing functionality and new and smarter apps for gathering data from users, it will become even easier to determine populations' needs, preferences, and satisfaction. Tablets, smart phones, and other portable Internet devices are only the beginning of a mobile trend that libraries can use to make improvements and respond to their users—especially in a wired world "on the go."

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[6] See Zoomerang's account options for more information,

http://zoomerang.com/signup/

[7] See the Usabilla site for more information, http://usabilla.com/.

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