



Roving Reference with iPads: a study of the use of iPads as technological support and service assessment

Christine Brown,
David Sulz and
Virginia Pow
University of Alberta
Edmonton, Alberta, Canada

Meeting:

**197 — Innovative information services in the digital environment
— Reference and Information Services Section**

Abstract:

Libraries continue to put effort into providing on-line and self-serve access to materials to reflect changing technological possibilities and expectations. Online solutions work for off-site and internet connected patrons but many patrons still physically work in library space, may not have internet connections, and may not know where to find help. The challenge is particularly great in large, multi-floor libraries where staff is not always within sight or earshot of patrons.

This paper reports on experiences in offering roving reference in a large University library with hundreds of potential patrons at any given time and limited staff resources. It reports on the usefulness and challenges of using an Apple iPad as the primary reference tool and whether it is uniquely innovative for this task.

Introduction & Background

Working within a culture of continuous assessment and evidence-based practice, we designed a pilot project to explore and assess the addition of roving reference to our already diverse on-site and remote service options within the Rutherford Humanities and Social Sciences Library at the University of Alberta. One recent on-site reference innovation was our 2008 integration circulation and reference services into a single service desk staffed by librarians and associate staff which has lessened patron confusion about where to seek help, streamlined service delivery, and enhanced job opportunities for associate staff. While this change has proven successful at the main service point, the size and complexity of the building and collections as well as the high volume of on-site patrons made us wonder if strategic implementation of roving reference assistance might be a valuable

service. In addition, we wanted to explore whether the highly-touted, new iPad tablet computer was an innovation that could contribute significantly to the delivery and assessment of roving reference.

We know that many patrons find it difficult to navigate our collections and physical space. Physically, we have two buildings joined by an atrium: Rutherford South (built 1951) houses a large reading room, computer labs, Special Collections, Government Documents, and a small portion of the main collection while Rutherford North (1973) is the largest library on campus with approximately 2 million volumes spread over five floors, our single service desk, and the Music Library. Together, the two buildings have hundreds of computer workstations and thousands of patron work spaces. Adding to the complexity is that a major proportion of our collection is held in a remote storage site (Book and Record Depository) from which we receive daily delivery of requested items.

Literature Review

The provision of reference service has seen significant changes over the last decade. Libraries are finding new ways to reach out to their patrons as they become more engaged in using reference sources and tools themselves. Jackson (2002) sees this growing independence as one of the causes for the reduction in numbers of reference questions coming to academic library service desks. University of Alberta Libraries (UAL) statistics reported in the Association for Research Libraries Annual Survey presents supporting evidence for this notion with reference transactions declining from a total of 169,135 in 1999/2000 to 87,630 in 2007/2008 and 92,323 in 2008/2009¹. The increase in availability of reliable information on the Internet and electronic reference materials is another contributing factor to changes in the number and kind of questions being presented to reference desk staff.

Although overall reference questions have decreased, our statistics show a significant increase in chat reference activity and, in addition, we are certainly seeing evidence of trends reported elsewhere such as patron interest in library services using mobile technologies (Lippincott, 2010) and changes in library procedures and policies that are concerned with mobile technologies (Vollmer, 2010). These trends support the notion that patrons prefer to receive help in ways that are convenient for them so libraries are busy working on many ways to expand or further develop reference services to meet the changing needs/preferences of users. Marie Radford (2008) is optimistic about these changes because they “involve the merging and morphing of a large range of reference modes” (p. 110) and because they include “experiments in outreach to user communities including on-ground as well as cyberspace communities”(p.110). While we forge new ground in mobile services, we must not forget that some of these mobile services do and can occur within the walls of the library, hence our interest in testing the combination of mobile service with face-to-face reference.

¹ Statistics accessed via <http://www.arl.org/stats/annualsurveys/arlstats/mrstat.shtml> (July 30, 2010).

Personalizing the reference encounter away from the main service desk is not new. Many academic libraries have experimented with roving or embedding librarians (Carter, 2003; Goda, Killingsworth and Basco, 2002; Hines, 2007; Ismail, 2010; Smith and Pietraszewski, 2004; Reichart and Kowalysk, 2004; Wagner and Tysick, 2007; Wong and O'Shea, 2004). As the two terms are sometimes confusingly used interchangeably, we have chosen Courtois and Liriano's (2000) description of **roving** as the act of "a library employee circulating within the reference area or other parts of the library to offer assistance to users" (p. 289) which is distinct from **embedding** which involves relocating to a location outside the library to assist users where they work, live, or gather. Both of these types of services have become possible and necessary due to increases in electronic materials including databases, electronic journals, e-books, digitization of content, and the evolution of wireless technology. As the amount of material available to patrons has grown, so too has their confusion about how to find and access material thus creating a desire to decrease the confusion (Huwe, 2003) via a variety of methods including roving reference services.

Libraries have also implemented roving reference to help students who may be reluctant to use reference desks because it might be seen as admitting publicly that they don't know something (Lee, Hayden and MacMillan, 2004). For similar reasons, some libraries feel that embedding librarians in locations outside the library will increase exposure to library services and offer service in convenient places for students or faculty (Reichart and Kowalysk, 2004; Wong and O'Shea, 2004). As Goda, Killingsworth and Basco (2002) state, "meeting students on their own 'turf', seemed to be the most proactive method of meeting the information needs of students and decreasing anxiety about the library" (p.16). At the University of Central Florida (Goda, Killingsworth and Basco, 2002) and Simon Fraser University (Wong and O'Shea, 2004), librarians found that roving reference increased students' ability to understand what the library had to offer by giving a 'taste' of what services and help are available in the library building. Whatever the reason for engaging in a roving reference project, it activity encourages what Huwe (2003) argues is a need for librarians to engage users and help create a synergy between digital and print collections.

Goda, Killingsworth, and Basco (2002) argue that a key benefit of roving reference is the increased visibility of the library to 'everyone', including the university administration; this self-promotion is an excellent method of keeping a service area in the forefront of the university. While Lee, Hayden and MacMillan's (2004) finding that one of the greatest benefits for roving outside the library was that the students and faculty who had not been coming into the library had an opportunity to use the reference services seems to apply mostly to embedding, it supports Wong and O'Shea (2004) who found that roving reference "acts proactively to find and educate students who may not be aware of their own research needs" and allows faculty the "opportunity to become aware of the libraries resources and knowledge the librarian can contribute to their own research efforts" (p. 4). Most reports on the implementation of roving or embedded reference seem to agree on the positive impacts it can make on students' and faculty awareness and use of reference service. As Wagner and Tysick (2007) point out:

... in the right settings, on-site reference has been the single most effective service for communicating a direct interest in the information needs of both faculty and

students in a department. Librarians generate good will and open the door for additional interactions by spending even a few hours “onsite. “ (p. 64)

Not all aspects of the implementation of roving reference have been positive. Researchers have reported that a significant number of queries took longer to answer than the typical reference desk queries and that the amount of time invested in roving or embedded reference services cannot always be seen as equaling the number of patrons served (Ismail, 2010; Wong and O’Shea, 2004). Goda, Killingsworth, and Basco (2002), found the cost for librarians to be at two locations for approximately four hours plus set up and take down time, was often not justified by the number of students helped. At the University of Calgary, Lee, Hayden and MacMillian (2004), were under the impression that the roving reference would bring the librarians closer to the departments but found that this was not the case. An example of the sometimes challenging reality of offering library service in University common areas was that students and librarian had difficulty hearing each other due to the noise in these areas (Wong and O’Shea, 2004).

Most roving or embedded reference projects included the use of technology as a support for providing the service. Michael Smith and Barbara Pietrazewki’s (2004) study on roving reference at the Texas A&M University found that tablet PCs were effective in providing the service and that proper marketing and training of staff on how to approach students were areas to work on to improve future service delivery. Ellen Forsyth (2009) described how many public libraries have used Vocera badges and wireless phone technology to allow roving staff members to have voice contact with patrons and other staff members. Programs at Harvard University, Simon Fraser University and Mississippi State University (Carter, 2003; Lee, Hayden and MacMillian, 2004; Goda, Killingsworth, and Basco, 2002; Newkirk and Peyton, 2006), found that roving reference services were best implemented with a laptop and a wireless connection. For each of the above institution, they also used carts to transport the computers and to use as a portable desk and signage to allow the patrons to know what the service was and what the hours during which it was offered. We considered that in our pilot project, the use of iPads as a supporting technology would reduce the need for carts as they can be easily carried and used on standing, at bookshelves, or at tables but wondered how this might affect patrons’ ability to identify rovers and the details.

Pilot Project’s Research Questions and Theoretical Framework

We designed our pilot project based on ideas from previous literature, our personal experience and expertise, and with consideration of Rogers’ diffusion of innovations theory (2003) with respect to the adoption and implementation of an additional service and the accompanying technology. In addition to helping ground our analysis in a theoretical framework, we felt this would help identify the advantages and disadvantages of moving beyond the pilot phase. Rogers defines an innovation as “an idea, practice or object that is perceived as new by the individual or other unit of adoption” (p.12) whose acceptance is influenced by how the adopter evaluates five attributes of the innovation. The *relative advantage* attribute reflects a comparison (better/worse) with a current practice/method; *compatibility* pertains to the innovation’s fit with the values and needs of the adopter; *complexity* refers to ease/difficulty of use, implementation, or understanding; *trialability* is

the ease of experimentation or intuitive understanding; and *observability* is how the results of adopting the innovation can be observed by the user or others.

This pilot project had two objectives: to explore the logistics and value of implementing a roving reference service in a complex library environment and to evaluate the suitability of a particular new technology (the iPad) for providing this service. The following research questions framed the project:

- 1) Is there evidence that patrons of the Rutherford Humanities and Social Sciences Library require (or would appreciate) roving reference assistance?
- 2) Do patrons who receive roving reference service rate it as helpful?
- 3) How can we determine which patrons require, or would benefit from, roving reference?
- 4) What are the logistics of offering roving reference?
- 5) Is the iPad an effective tool for providing roving reference service and conducting assessment?

In analyzing our implementation of this innovation, we describe our independent findings and compare them as appropriate to other implementations of roving reference.

Method

Librarians and higher-level associate staff were invited to volunteer² to take 1 hour roving reference shifts using library-owned iPads within the Rutherford Library complex during the busy months of the fall and winter terms of 2010-2011. The authors convened a preparatory meeting for all volunteers to describe the project in more detail, discuss and share methods of how best to identify and approach potential patrons, and provide some training on the use of the iPads. Volunteers were encouraged to experiment with the iPads onsite or by taking one home overnight to become comfortable enough to use it while roving. As well, an information sheet outlining the procedures to follow as well as tips on approaching users was circulated and the authors were available for questions as they arose. In fact, the authors participated in the pilot project taking several shifts themselves.

The roving services were to be publicized by using sandwich boards located in strategic locations (determined by rovers themselves) that included a photo of the roving staff member and information on where they could be found (e.g. Look for David on the 3rd floor between 2-3pm). Roving sessions of at least one hour were encouraged but it was left up to individuals to lengthen or shorten for their own convenience. During each roving shift, volunteers were asked to record statistics about the kinds of questions answered, comments on the roving activity itself, and comments on the use of the iPad in particular. They were also asked to rate how they felt about the success of each roving shift (see Appendix 1). As part of the training we encouraged staff to try to assist patrons as best they could with most questions but encouraged them to refer any complex questions to the

² The project could not schedule staff for a set number of roving shifts due to staffing shortages that resulted from significant library staff take-up of a voluntary retirement package announced by the University in early 2009 set to take effect in the summer of 2010.

Service Desk or the most appropriate liaison librarian. Finally, a debriefing meeting was held at the end of the fall term to gather informal comments on the roving sessions to incorporate in the next round in the winter term.

At the end of each significant reference encounter (e.g. more than directing a patron to the washroom), the staff member was to ask patrons to complete a short survey using the iPad for privacy (see Appendix 1). As per standard ethical research practice, participants were informed their participation in the survey was voluntary and it was acceptable not to answer questions they were uncomfortable with. Users were also assured that their identity would not be revealed. Consent to participate in the service was deemed to have been given when the patron approached the staff member for help or if they replied affirmatively when asked if they needed help.

User Interactions

By the end of the pilot project, staff volunteers had completed 21 hours of roving shifts and answered a total of 62 questions (26 reference, 33 directional, 3 referral). From these interactions, we ended up with 36 patron survey responses although 1 was discarded because there were no actual responses to the individual questions. Not surprisingly, most of the participants were undergraduates (74%) while the remaining were graduate students (13%), high school students (10%), and 1 faculty member (3%). Most of the respondents could be considered fairly regular users: several times a week (22%), once week (28%), or once a month (25%). Eight respondents (25%) were occasional users: once a term or less (9%) or first time users (15%).

Overall the students who received help with reference questions indicated a high level of satisfaction with the assistance provided. When asked, "Was the assistance provided today by the roving library staff member helpful?" 78% said it was "extremely helpful" and 22% said it was "somewhat helpful." Interestingly, those who said the assistance was only "somewhat helpful" were all what might be considered less-frequent patrons (i.e. first-time users, once per term, or once per month). This indicates something for future investigation; are less frequent users somewhat less satisfied because they are not familiar with the kind of help they need, are their expectations too high, or are staff better at helping people who already are relatively familiar? Since this was only a pilot study, we purposely kept the questions to a minimum and did not probe further. In future, asking users for both a level of satisfaction and why they felt that way would be useful information for both service improvement and training purposes.

When asked to choose from five set-response choices about what they would have done if a staff member had not helped them, most chose "continued searching on my own" (54%) while others chose "used what I'd already found" (20%), "asked for help elsewhere" (8%), or "changed topics" (8%). Of those who chose "other, please specify" (8%), two indicated in the follow-up open-ended response that they would have given up eventually and one wrote, "but taken longer" presumably indicating confidence in finding the same information but the roving reference saved them time. Respondents who indicated that they would ask for help elsewhere were then asked from "who or where" and all three replied they would seek help at the service desk or from "staff at the library."

One third of respondents offered open-ended comments about the service they had received. Most were just few words indicating positive support such as “helpful”, “very good”, “somewhat surprising, but useful.” Two people remarked on the convenience of help coming to them and not having to “return to a computer terminal” or “leave my station.” The lengthiest comment seems to sum up the sentiments, “Really glad that I was just asked if I needed Help and I did. I learned a lot about how to do research and over all it was really useful. I feel better about my research project topic.” Also there was a note of encouragement, “cool idea, hope it works out.”

Staff Experiences and Feedback

In the end, at least 21 roving reference shifts by 9 different staff members resulted in completed surveys representing 21 hours of roving reference service at various times of the day: 5 in the morning (9:00-12:00), 15 in the afternoon (12:00-16:00), and 1 unrecorded. We can't say with confidence that there were only 21 hours of roving reference since it is possible that some staff did a shift but did not submit a survey at the end. The rovers were asked to count and categorize their interactions as reference (26), directional (33), or referral (3) although we did not ask them to track of the length of time spent on each questions so we cannot know if this represents being busy or not. If complete and reliable, information on type and time would be useful for planning and scheduling but the practicalities of collecting this kind of data are questionable so a regular sampling of reference activities might be sufficient.

Staff were asked which areas they roved; most reported roving floors 2-5 of Rutherford Library north where most of the collection and quiet study spaces are located (33 visits) although some rovers occasionally ventured into other areas more dedicated to less quiet and/or group study where there were fewer books (1 visit reported for each of 7 different area). Most staff stuck to roving one, two, or three floors per shift although two sessions were reported as visiting more than four locations. If we are to move toward implementing roving reference, it would be important to identify areas for rovers to concentrate efforts as well as provide guidance on other tasks to do while roving would facilitate and improve success.

Comments on Roving

Roving volunteers were asked to complete two open-ended responses, one related to “roving” in general and the other to using an “iPad” in particular; we particularly wanted to see if such unprompted questioning would bring out any patterns and also highlight what individual volunteers deemed most important to convey.

For the first round (fall term), the “roving” question read, “Note issues, problems, or significant barriers with roving to interact with patrons.” After debriefing with rovers and scanning responses, we modified the question slightly for the second round (winter term) - “Notes on roving (pro and con): e.g., making users aware roving help is available, ways of approaching patrons, help & tasks suitable (and unsuitable) to roving.” Although this added an element of prompting, these general categories had already shown up in the unprompted responses and are consistent with other studies and the literature.

For analysis, responses were separated into constituent parts (a single idea or task), then grouped into common themes; this resulted in 66 ideas but there was some repetition. Although such grouping is somewhat subjective, four general themes seemed to emerge around determining: appropriate engagement strategies (which patrons might appreciate assistance and then approaching them), questions or tasks suitable for roving (what types of tasks or questions are best addressed in roving reference), the logistics of offering and promoting roving reference, and the value of roving reference both to patrons and to staff members themselves. For brevity, we refer to these as engagement, questions/tasks, logistics, and value respectively.

Many comments were made about the challenges of determining who might need or appreciate help in the large and complex Rutherford library: two buildings, eleven floors, thousands of scattered patron work spaces, and floor-to-ceiling shelving for almost 2 million items. Some comments acknowledged we cannot assume all (or even most) patrons might be interested in the help we could provide; for example, “students listening to iPods ... unable to tell if they’re using the space for research or studying or leisure,” “students were settled in studying. Newcomers went straight to a vacant seat or to a computer,” “most of the students were engaged in studying for exams,” many at carrels studying other subjects or social webbing.”

Given this finding that our patrons are not just humanities and social science students doing library research, rovers commented on observations they used to determine who might appreciate help. Some looked for hints in demeanor such as “seeming bewildered”, “she looked up with that I-have-a-question hopeful look”, and “looked for lost sheep.” Others used locations or observed tasks: “saw they were searching the catalogue [in their carrel]”, “seemed to be looking for books on the stacks”, “coming through the entrance.” Familiarity also worked; “I approached a patron ... that I'd helped yesterday.”

Having identified patrons potentially needing help, rovers reported strategies they used to initiate assistance: “presented myself as a librarian and asked if the patrons required assistance”; made “eye contact”; used phrases like “finding what you need?”, “Making out OK?”, or “Finding interesting things?” Not surprisingly, not everyone wanted help although several patrons’ immediate response was along the lines of, “No, I’m fine. [pause] Well, actually, since you ask...”; this last one hints at the reality of catching people by surprise and the delicate balance of being around long enough for the offer of help to register yet not appearing pushy.

Rovers, in general found it easy to approach patrons in the stacks or at computer terminals but more difficult if someone seemed to be concentrating or doing non-library activities. Some comments reflected discomfort and uncertainty in approaching patrons at all: “iPods are hard to interrupt”, “lots of patrons in their own world and seemed uninterested in help” and “I feel it's inappropriate to approach students because of what I observe on their computer screens so I really hesitate to do that.” One seemed a bit embarrassed, “I may have asked a girl twice if she needed help -- since I see so many patrons per day, I don't recognize if I've asked the same person for help twice. Though she seemed friendly, I can't help but wonder if she was annoyed or feeling pressured.” These comments highlight

subjective differences in staff personality and the need to consider staff selection or training methods.

Of the patrons who responded to the offer of assistance, their requirements fall into a few categories from simple to in-depth reference. Simple tasks included finding call numbers, navigating to shelf location, questions about library services (library cards, how many books can be “rented” at a time, how to check out books, liaison librarian appointments, libguides, scanner locations). One usually simple task, placing a hold on a book online, was complicated by security issues in retrieving a patron’s PIN while roving with an iPad; there are two possibilities to address this but both involve rather complex workarounds³. Several more complex reference questions also occurred such as determining different geographic editions of a newspaper, finding information on Greek goddesses, using a known title to discover related subject terms to discover call numbers to identify areas for shelf browsing, and how reviews of a film adaptation of a Shakespeare play are not located beside the actual play.

The theme we identify as “logistics” comes from a few comments about scheduling and promotion. Promotion involved rovers adding their photo to a letter-sized sign with basic, shift-specific information (e.g. roving time and general location) to a large sandwich board sign that could be located on the floor where they were roving or at the elevators where users gain access to the upper floors. Although only one survey response referred to this – “I placed two sandwich boards on the main floor ... a half hour before my shift: one near the photocopiers/self-check machines and another near the elevators” – we know anecdotally that this generated a lot of discussion among staff about where to place signs, what information to include, and when to set them out. One comment did indicate that familiarity might be the best long-term promotion: “seeing us there will be useful in the future, when people become used to our presence.” Similarly, only one comment related to scheduling and priority - “my shift was cut short to help out on the service desk.” This is a major consideration for us as we decide whether to move forward to formalize roving service in the library. One particular comment summed up the issue of locating roving staff in a large complex: “[after my shift] a colleague [on the service desk] mentioned she had to come up to stacks to show a student where a book was - “Where were you?” she asked jokingly (knowing how big the floors are).” In other words, there is a challenge in deploying rovers in such a way that patrons wanting help can find them.

Finally, a theme relating to the value of, and demand for, roving reference service (both to patrons and staff themselves) came up with hints in some responses (and anecdotal conversations from our meetings) about the “worthiness” of various tasks and types of questions and what sort of staff should be deployed (e.g. librarian versus associate staff). Some responses were clear judgments “there was a ridiculously low amount of people in the stacks - I was only able to approach two patrons and they did not need help” while others could be taken as either pro or con, “out of the 6 people I approached, 3 accepted my help” and “had three patrons in the first half hour.” Several comments suggested value

³ Our system allows PINs to be emailed to patron accounts but this would require the patron logging in to their email with our iPad. The other option is the staff rover logging in to our chat reference and requesting the PIN but this has security issues.

to roving reference for staff themselves even if patron demand is low, “roving is a good opportunity to familiarize with various sections, see what activities are happening, work on reference questions that might involve randomly finding books in a call range, and checking references”, “familiarize with [my] liaison sections,” and even get a feel for the conditions patrons experience, “the 5th floor lights kept going on and off as maintenance workers were testing electrical issues.”

On this same theme of value, one survey question specifically asked rovers to comment on their “impression of how helpful this shift was in assisting Rutherford patrons.” In contrast to the patron survey responses which were all positive (see above), staff responses were more distributed: 5% not at all helpful, 40% somewhat helpful, 33% helpful, 24% very helpful. This probably reflects the fact that patron responses came from people who were actually helped while staff responses probably included reflection on the number of people who were not helped, whether it was worth the staff member’s time, and the quality of service that might have been received through other reference means not influenced by perceived limitations in what can be done while roving.

Comments on the iPad

The open-ended responses to using an iPad were analyzed in the same way as the “roving” responses: single ideas grouped into themes. About 40 ideas were expressed that group into 2 broad themes and 5 sub-themes: suitability for library tasks (services available and specific need for an iPad) and design of the iPad itself (physical design, design of user interfaces, and intuitiveness).

For library and reference tasks, rovers reported the iPad was great for such things as verifying call numbers, accessing the catalogue for a quick check, browsing LCC classification, checking websites on the fly, and placing a hold on an item. There were some limitations when, for example, the wireless connection was broken, a patron needed a PIN (which is usually emailed but the rover obviously doesn’t have access to the patron’s email on the iPad), and it does not completely replace the need for paper and pen to jot down a few call numbers after a catalogue search. Some rovers commented that many of these tasks could equally be done on a laptop (including the patron’s own), other tablet product, or a nearby library computer terminal. As libraries and/or the vendors of integrated library systems develop applications for using the iPad to interface with this software, some of these issues will likely be resolved.

Positive comments on the physical design included “easy to hold”, “both of us can see screen”, and “more convenient than walking with a laptop though which I observed several patrons doing.” Some negatives were that one “can only type with 1 hand while holding” and that it is “much harder to look and write notes and email while standing.” There were a few frustrations with the screen size and sensitivity size such as the “pop-up keyboard would sometimes be in the way and it made it harder to navigate,” it is “tricky to get a big enough view to use large fingers but wide enough to see whole sentences”, and that “a light brush will initiate a search that can't be stopped until complete and takes up time”.

Many comments relating to the interface were negative and related to functions commonly used with a desktop/laptop but sacrificed for mobility. For example, the pop-up keyboard was frustrating for some, "I absolutely hate the fact that we have to hit a special key to get [a different keyboard layout for] numbers and symbols"; this is cumbersome for entering alpha-numeric call numbers, entering search strings (quotation marks, parenthesis, and symbols such as * or \$), and composing grammatically correct chat ref/emails with apostrophes and numbers. Other frustrations included the lack of the control-f shortcut to search a document and the way the "spell-check option defaults to correcting (e.g. was tricky to get it to accept "nunn" and not change automatically to "nun").

Some frustrations related to the supposed intuitiveness of the iPad and might indicate that some staff had spent more time learning how to use the iPad than others. Whereas some functions are quite easily figured out (e.g. "the key itself says "123" so I didn't realize at first that's where the quotation marks would be") others require more searching to discover; for example, one comment indicates the "search string revisions are difficult without ability to backspace without deleting - have to start over" which is not technically true but the method of moving the cursor backwards without deleting is pretty obscure and not likely discovered by experimentation (i.e. holding ones figure over the text for 1-2 seconds). One staff member said that "not everyone knows how to use iPad for answering survey" and "there seems to be a bit of a learning curve and it made me a little uncomfortable to help people while not completely competent with the iPad" which points to the need to consider the layout and kinds of questions asked on a patron survey as well as ensuring that staff do spend enough time learning how to use the tool.

Discussion

The relative advantage of providing roving reference with iPads came from the patrons in their expressed appreciation of the helpfulness, convenience, and just-in-time access to assistance mirrored other roving reference projects in the library or beyond (Smith & Pietraszewski, 2004; Wagner, & Tysick, 2007; Wong & O'Shea, 2004). The more interaction that occurs between library staff and users at either the point of information need or at a point of convenience the more likely the service is to be rated as personalized or beneficial to users. For staff, this service provides opportunities to familiarize themselves with subject area materials and patron activities that would be challenging to achieve in other ways.

The iPad certainly offers advantages such as portability, suitability for simple on-the-fly web searching, ease of gathering user feedback for assessment, and ability for several people to easily see the screen; like Lotts and Graves (2011), we found the multifunctional capabilities and long battery life to be useful. Anecdotally, patrons seemed to like the opportunity to use this new technology and agreed to provide some quick feedback; although we recognize that new technology becomes old rather quickly so the "cool" factor should not be over-emphasized and other products will come along.

There were some relative disadvantages to both the roving service and the iPad. Compared to providing reference service through our usual channels, roving reference involves more (or at least additional) attention to logistics and scheduling. As for the iPad itself, more

complex activities such as editing and entering substantial text requires training and practice and the absence of applications for integrated library systems (e.g. no SIRSI app to interact with Workflows using a mobile device) is a current problem which could be addressed over time or be developed in-house.

Roving reference and the adoption of new mobile technology is certainly compatible with our service values. The University of Alberta Library has long been committed to enhancing our ability to provide quality and effective patron service. This includes exploring and embracing new innovations and technologies within a culture of continuous assessment and evidence-based practice. Our patrons have access to world-class collections and services through an increasing myriad of channels that we are constantly adding and tweaking. We offer reference assistance in-person at service desks and faculty offices, by phone and email, through instant messaging (chat ref), and by social media. Of course, this means that we need to constantly improve our ability to help patrons maximize their utilization, reduce confusion, and ensure necessary channels of assistance are not neglected or missed.

Compatibility for staff was more nuanced. Some staff found engaging with the users easy because it fit naturally with their personal approach while others struggled to find ways to connect; this is not uncommon nor a reflection on professionalism. Courtois and Liriano (2000) offer two approaches, either train all staff for this task or just use “your best people” as rovers; however, issues of fairness and equitable distribution of work may arise when setting public service assignments in this context. Pitney and Slote’s (2007) approach required training with the following objectives: train for, and model, the four behaviours of “approachability, listening, informing, and closure,” facilitate the learning of “when and how to make referrals,” and have staff members “develop a personal plan to help improve customer interactions”(p. 59). This approach would likely increase both staff confidence in roving abilities and their personal responsibility to the task.

In this pilot project, Rogers’ attributes of complexity and trialability overlap somewhat with comments made above. Implementing a roving reference service is certainly not simple with complexities around scheduling, training, promotion, communicating priority, and assessment. Fortunately, experimentation at the trial stages (i.e. trialability) is quite easy so complexities can be reworked and adjusted with little cost of money or effort. Of course, once decisions are made and service expectations set, change becomes more difficult. The iPads were generally considered as low complexity and easy to use especially for basic reference services. However, as Smith and Pietraszeski (2004) found with tablet PCs some seven years ago, some of the taken-for-granted functionality of a desktop or laptop could only be accomplished on an iPad with complex workarounds; to some extent, this reflects unavoidable tradeoffs for portability but some improvements are possible with incentives (e.g. demand) to develop solutions by allocating more resources (e.g. time, money, expertise).

Roving reference is an innovation that can be observed according to Rogers’ observability attribute. Patrons can see library staff proactively trying to identify individuals with information needs and doing their best to fulfill them. Lotts and Graves feel that their use of iPads for roving reference helped present librarians as “cool” and technically accessible (p. 219) and our rovers felt that students noticed them and were willing to try using the iPad

to provide feedback; again, however, one must be aware of the often short-lived nature of being technologically cool. Although not perfect, the iPad does seem to be positively disposed to observability, complexity and trialability.

Conclusion

When examining the results of this pilot project in the context of diffusion of innovations theory (Rogers, 2003) it is clear why many of the diffusion attributes have lead libraries to adopt roving reference along with information technologies that assist in the implementation (e.g., iPad, laptop, tablet). Relative advantages seem to outweigh any disadvantages, there are few incompatibilities, complexity is apparent but can be usually be overcome with training and commitment, trialability is high (easy and cheap to implement most changes at first), and the whole project lends itself to observability. This is not to say that significant supporting actions are not required for successful, long-term adoption of this innovation.

Proceeding to the next step requires addressing the broad themes identified above. Firstly, the value of providing roving reference with iPads must be considered from several angles including staff, patron, and institution perspectives. Next, more consideration must be given to the logistics such as who will provide the service, when will it be provided (i.e. consistent or random), how will it be promoted so patrons know not only that it exists but who to approach (e.g. would some sort of uniform be helpful for patrons and acceptable to staff), and what tools are most appropriate (e.g. iPads or something else). Finally, significant training and preparation must be provided both around engaging patrons (i.e. how to identify and approach) as well as competence in performing the types of questions that are likely to be asked both from the perspective of knowing how to approach the problem conceptually as well as using the tools effectively. Of course, this can all be implemented in an iterative fashion according to the prototyping principle of fail early, fail often, fail cheaply that allows for an overall successful implementation of innovation by allowing identification and adoption of beneficial practices and the weeding out of ineffective ones. The current project has certainly helped us to understand where to focus our energies and that this will be a continuous process of innovation and adaptation to meet new challenges and contexts.

Acknowledgements: The authors would like to acknowledge the support of the University of Alberta Libraries in awarding us a small research grant of \$1500 for the purchase of the iPads used in this project.

Cited References

- Barnes, N., & Peyton, G. (2006). Reaching out to the net generation on campus: Promoting the MSU libraries in the residence halls. *Public Services Quarterly*, 2(4), 47-68.
- Courtois, M., & Liriano, M. (2000). Tips for roving reference: how to best serve library users. *College & Research Libraries News*, 61(4), 289-90, 315.

- Davidson, S., & Mikkelsen, S. (2009). Desk bound no more: Reference services at a new research university library. *Reference Librarian*, 50(4), 346-355.
- Forsyth, E. (2009). Fancy walkie talkies, star trek communicators or roving reference? *Australian Library Journal*, 58(1), 73-84.
- Hines, S. S. (2007). *Outpost reference: Meeting patrons on their own ground* Pacific Northwest Library Association.
- Huwe, T. K. (2003). Casting a wider net with roving reference. *Computers in Libraries*, 23(3), 34.
- Holmes, C. & Woznicki, L. (2010). Librarians at your doorstep: Roving reference at Towson University. *College & Research Libraries News*, 71 (11): 582-585.
- Ismail, L. (2010). *What net generation students really want: Determining library help-seeking preferences of undergraduates*. *Reference Services Review*, 38(1), 10-27.
- Jackson, R. (2002). Revolution or evolution: Reference planning in ARL libraries. *Reference Services Review*, 30(3), 212-228.
- Lippincott, J. K. (2010). Mobile reference: What are the questions? *Reference Librarian*, 51(1), 1-11.
- Lotts, M. & Graves, S. (2011). Using the iPad for reference services: Librarians go mobile. *College & Research Libraries News* 72(4): 217-220.
- Pitney, B & Slote, N. (2007). Going mobile: The KCLS roving reference model. *Public Libraries* 46(1): 54-68.
- Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.), New York: Free Press.
- Vollmer, T. (2010). *There's an App for That! Libraries and Mobile Technology: An Introduction to Public Policy Considerations*, Policy Brief No. 3. American Library Association Office for Information Technology Policy. Retrieved from: <http://www.ala.org/ala/aboutala/offices/oitp/publications/policybriefs/mobiledevices.pdf>
- Wagner, A. B., & Tysick, C. (2007). Onsite reference and instruction services: Setting up shop where our patrons live. *Reference & User Services Quarterly*, 46(4), 60-65.
- Wong, S. & O'Shea, A. (2004). Librarians have left the building: Ask us HERE! at Simon Fraser University. *Feliciter*, 50(3), 90-92.
- Smith, M. M., & Pietraszewski, B. A. (2004). Enabling the roving reference librarian: Wireless access with tablet PCs. *Reference Services Review*, 32(3), 249-255.

Appendix 1: Patron and Staff Surveys

*Note that all questions were delivered using Survey Monkey. Patron surveys were all completed on an iPad; staff surveys could have been completed on iPad, laptop, or desktop according to individual preference.

Patron survey:

Consent screen: By completing the survey you agree to participate in the study. Please feel free to skip any questions you don't feel comfortable answering.

Q1: Was the assistance provided today by the roving library staff member helpful?

[radio button responses, only 1]

- No, not at all
- Yes, somewhat helpful
- Yes, extremely helpful

Q2. If the roving staff member had not come along, what would you have done?

[radio button responses, only 1]

- Continued searching on my own.
- Asked for help elsewhere
- Used what I'd already found
- Changed topics
- Other (please specify) [open ended response prompted]

Q2a (if "asked for help elsewhere chosen in Q2): Who or where would you have approached for help? List all options that come to mind.

[open-ended response prompted]

Q3: Do you have any comments to offer about the help the roving library staff offered today?

[open-ended response prompted]

Q5: Tell us a little about yourself

[radio button responses, only 1]

- Undergraduate Student
- Graduate Student
- Faculty Member
- Community user
- Other (please specify) [open-ended response prompted]

Q6: Which best describes how often you usually come to the Rutherford library?

[radio button responses, only 1]

- Several times a week
- About once a week
- About once a month
- About once a term
- Less than once a term
- This was my first time using the Rutherford Library

Staff Survey

1. Shift information:

- Staff name:

- Date:
 - Start time:
 - End times:
 - Locations Roved/Visited:
2. Indicate how many of each type of question you dealt with on this shift.
- Reference questions
 - Directional questions
 - Referrals
3. Notes on roving (pro and con): e.g., making patrons aware roving help is available, ways of approaching patrons, help & tasks suitable (and unsuitable) to roving.
[open ended response prompted]
- (Note: Staff Surveys completed in Fall term (Oct-Dec 2010) had different question 3 wording “Note issues, problems, or significant barriers with roving to interact with patrons.”)
4. Notes on using iPad to assist patrons while roving – what it is great, adequate, and/or unsuited for?
[open ended response prompted]
5. Rate your impression of how helpful this shift was in assisting Rutherford patrons.
- 1 Not at all helpful
 - 2 Somewhat helpful
 - 3 Helpful
 - 4 Very helpful