"I Find Google a lot Easier than Going to the Library Website." Imagine Ways to Innovate and Inspire Students to Use the Academic Library

Lynn Silipigni Connaway, Donna Lanclos, and Erin M. Hood

Introduction

The academic community has many options to engage in the information environment, making physical and digital libraries one way among many others. Library resources often are not the first or even second choices of students and the academic community, who choose the more convenient, easier to use open-access sources.[1] Librarians and education technology experts require more effective tools to be able to confront the ongoing shift from the traditional setup in libraries and academia, wherein the users built their workflows around the library, and resources were scarce, to the current situation, where the library must build services around user workflow, and help users manage the problem of massively abundant resources.[2]

Ubiquitous budget concerns make it especially important for librarians to provide services and systems that are the best value for the most use. Those responsible for creating and delivering services in the digital information environment could easily be accused of using an "if we build it they will come" approach, an effect of institutions focusing on the provision of resources without properly considering the expectations or motivations of students and scholars. Individuals' shifting engagement with the information environment appears to have radically changed in the last decade; yet it is unclear whether this is the effect of larger cultural changes brought about by the web or of new attitudes towards education as a whole. To make evidence-based decisions, as recommended in the ACRL *Value of Academic Libraries* report, it is necessary to identify how, why, and under what circumstances individuals use the various available systems and services.[3]

This paper reports the initial findings of a three-year longitudinal study to identify how late-stage secondary school and first-year undergraduate students in the US and UK, referred to here as members of the "Emerging" educational stage, engage with technology and information sources. The assumptions embedded in traditional academic library services and systems and the existing disconnect between the everyday information-seeking behaviors of members of the Emerging stage (last year high school/secondary school or first year college/university) are examined. Initial results highlight the importance of convenience as a crucial factor in information-seeking behavior. There also are indications that as users progress through the educational stages, the digital and information literacies they employ do not necessarily become more sophisticated.

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Defining "Literacies"

The ALA Digital Literacy Task Force has defined "Digital Literacy" as "the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills."[4] The ALA definition of "Information Literacy" is "a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information."[5]

Based on these definitions and discussion, "digital literacy" refers to the strategies and skills needed to work with information and communication technologies, while "information literacy" refers to the strategies and skills needed to find and evaluate the information itself. These definitions are employed in this paper to distinguish among the different literacies employed by people as they seek and evaluate information in a variety of settings.

Visitors and Residents

There is little understanding of what motivates individuals to use particular technologies or spaces when engaging with the information environment. As a result, some adopt simplistic but culturally panicked ideas in their attempts to grasp the problem while others delve into specifics such that little substantive conclusions can be drawn. In recent years such approaches have been fuelled by Prensky's "Digital Natives and Digital Immigrants" theory, which proposed the idea of "digital natives" to refer to the current generation of students as fluent speakers of technology, having been raised speaking that language, while older generations were "digital immigrants" who have had to learn this new language.[6] This theory has been challenged and Saunders reports that faculty believe the idea of "digital natives" to be faulty as students are not skilled in information retrieval and rely too heavily on known sources including Google and Wikipedia.[7]

The Digital Visitors and Residents (V&R) project is a US/UK collaborative project, funded by JISC, OCLC Online Computer Library Center, Inc., Oxford University, and the University of North Carolina, Charlotte. The research integrates theoretical frameworks from library and information science, educational technology, and anthropology and is an attempt to fill the gap in user behavior studies identified in the JISC *Digital Information Seeker Report*.[8] We are applying the V&R framework to analyze and map the data collected.[9] In simple terms the Visitors see the web as a series of tools. They decide what they want to achieve, chose an appropriate online tool to do the job, then log-off. They leave no social trace of themselves online. The Residents live a proportion of their lives online. They see the web as a place where they can express themselves and spend time with people. Residents will have a profile on a social networking platform and aspects of their persona, or digital identity, maintaining presence even when they are not online. The premise of V&R is presented as a continuum whereby individuals' modes of engagement will be more Visitor or Resident depending on their personal motivations and the context and situation at the time. The project is user-centered, not platform- or discipline-centered.

Using the V&R framework ensures that analysis is firmly focused on motivations to engage rather than on age or technological "skill." It facilitates the identification of modes of engagement which potentially cut across traditional academic levels and boundaries. The project is tracking US and UK participants' shifts in their motivations and forms of engagement with technology and information as they transition between four educational stages:

1. Emerging (Late stage secondary school/First year undergraduate);
2. Establishing (Second/third year undergraduate);
3. Embedding (Postgraduates, PhD students);
4. Experienced (Scholars).

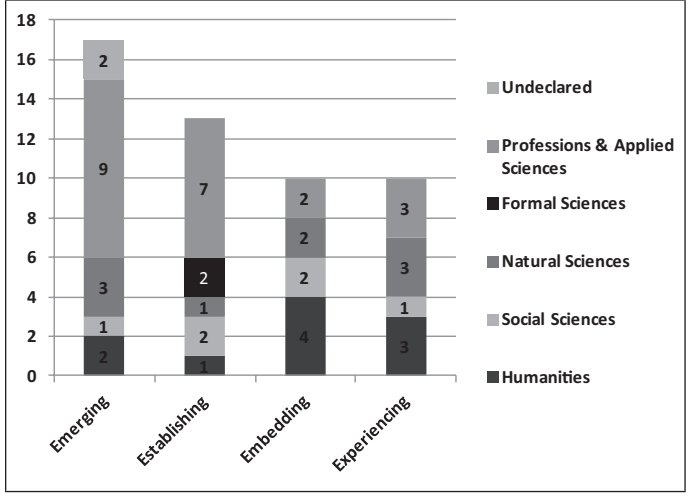
In Phase 1 of the V&R research, semi-structured interviews with participants from the four project-defined educational stages were conducted in the US and UK. In Phase 2 of the project, a sub-set of the interviewees were selected to participate in the monthly information diaries. In order to consider cultural and geographic differences in user behaviors, it was necessary to include a sample of English-speaking participants from outside the US; therefore, the participant sample of the V&R research also included individuals from the UK. The broader context allows us to more effectively answer questions such as: Do the behaviors occur because of the technology? Are the behaviors characteristic of people who are in university settings? Can differences be attributed to whether subjects live in town, or in suburbs? Are we seeing differences because of geographic and cultural differences between participants in the UK and the US?

There are a total of 61 participants in project Phases 1 and 2.There were 17 diarists in Phase 2, 11 from the US and 6 from the UK. Among the diarists, we had 13 Emerging, 2 Establishing, one Embedding, and one Experiencing participant. Each diarist submitted, in the form of their choice, descriptions of the kinds of activities they did online, both in academic and non-academic settings. Diaries were primarily submitted via email (because they were "formal communication" with researchers), but a few video logs were also delivered.[10]

In the US, 15 participants are female and 16 are male, and in the UK, 19 are female and 11 are male. Altogether, there are 15 secondary students and 46 university students and faculty. The students and faculty are a convenience sample—those who were willing to be interviewed, in institutions that allowed us entry. Attempts were made to recruit secondary students from schools with a wide range of socio-economic backgrounds. We recorded the residential postcode/zip codes and parental educational levels for the participants as a way to attempt to triangulate broad socio-economic categories. Both zip codes/post codes and parental education levels were used, because neither was an adequate proxy on its own, and it was an attempt to get a more accurate effect from combining them. Questions addressing current and past vocations were asked to enrich the picture of interviewee backgrounds.

The breakdown of academic disciplines in the sample also is broad. There were many majors and disciplines, and they have been filtered down to six basic categories.[11] See Figure 1.

FIGURE 1
Disciplines and Educational Stages



Project Results and Discussion

The quantitative and qualitative methods, including ethnographic methods that devote individual attention to the subjects, yield a very rich data set enabling multiple methods of analysis. Instead of reporting the general information-seeking habits of the Google Generation and their use of technology, this study can explore how the subjects get their information and interact online based on the context and situation of their needs during an extended period of time, identifying if and how their behaviors change. Because many digital and information literacies are developed by learners in a trial-and-error manner, it is important to gain an understanding of these emerging literacies to ensure that effective advice and guidance is given in the ongoing development of digital literacies.

Digital Sources

Research into digital sources is certainly prominent and highly focused. Within digital sources, forms of social media are highly investigated, as well as Google. Gardner and Inger report that students and researchers used Google more than information managers.[12] They also found that students used Google Scholar slightly more than Google while academic researchers used Google. In addition, Raven found that professors deemed Google to be an "appropriate academic research tool for less than 20% of research material," but that first-year students reported using it to locate between 50% and 100% of their material.[13] Greenhow and Gleason focused on Twitter, finding that usage among American teens and young adults is low but growing quickly.[14]

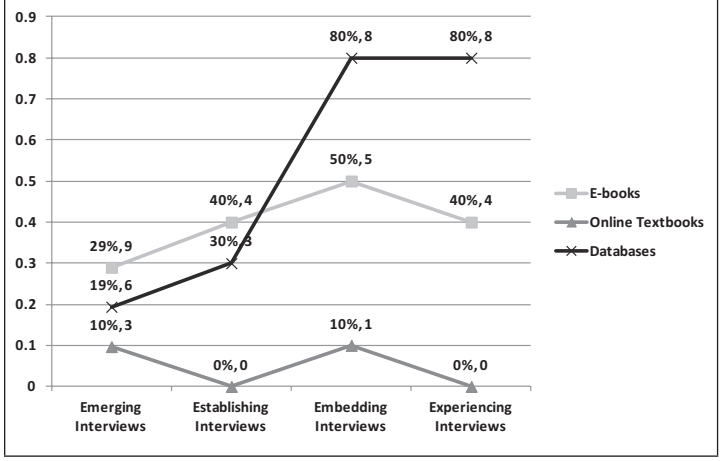
Analysis of the V&R interview data reveal that digital sources were spoken of at high rates by participants in all four educational stages, at a rate of 96.8% (n=30) for Emerging interviewees and 100% (n's=10) for the other three stages. Databases were mentioned the most. While they were only mentioned by 19.4% (n=6) of Emerging participants and 30% (n=3) of Establishing participants, they were mentioned by 80% (n's=8) of both Embedding and Experiencing participants. See Figure 2.

Interest in e-books varied among the participants of the four educational stages. They only were mentioned by 29% (n=9) of those in the early years of their academic careers (Emerging participants), 40% (n=4) of Establishing participants, increasing to 50% (n=5) of Embedding participants, then decreasing again to

40% (n=4) of Experiencing participants. However, it was the online textbooks that were spoken of the least, mentioned by only 3 (9.7%) of Emerging interviewees, none of the Establishing interviewees, only 1 (10%) of the Embedding participants, and none of the Experiencing interviewees. See Figure 2.

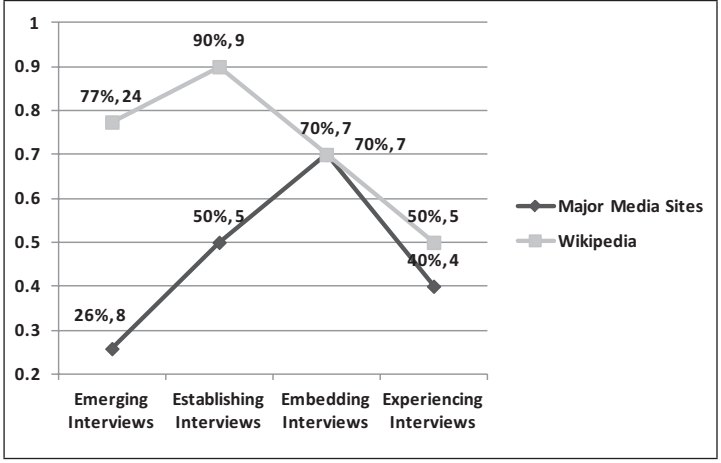
University databases were mentioned most often by the Embedding (80%) and Experiencing (80%) participants. The large number of Embedding and Experiencing mentions of university databases could be attributed to the fact that those in the advanced educational stages actually realize they are accessing databases provided by the university and not because they actually use university databases more than those in the early stages of their academic careers. The lower number of mentions among the Emerging and Establishing stage participants is not necessarily a measure of how often undergraduates use university databases—the rate might actually be high, but they may not know that they are accessing university databases; therefore, not mentioning them in the interviews. See Figure 2.

FIGURE 2
Digital Sources and Educational Stages (Books and Databases)



Major Media Sites and Wikipedia were the highest sources mentioned among the websites. Major media sites, such as the BBC or Discovery Channel only were mentioned by 26% (n=8) of Emerging participants, but 50% (n=5) of Establishing participants, 70% (n=7) of Embedding participants, and 40% (n=4) of Experiencing participants. Wikipedia was highly referred to by 77.4% (n=24) of Emerging interviewees, 90% (n=9) of Establishing interviewees, 70% (n=7) of Embedding interviewees, before dropping to 50% (n=5) of Experiencing interviewees. See Figure 3.

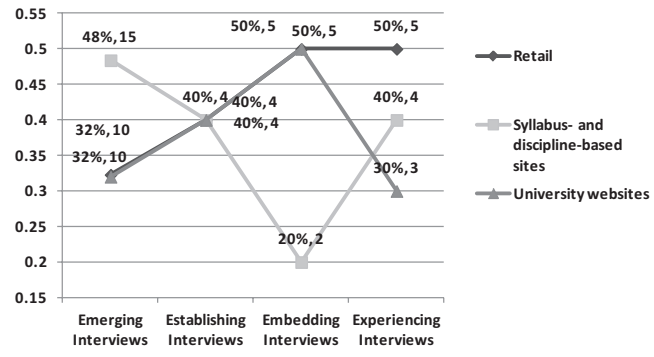
FIGURE 3
Digital Sources and Educational Stages (Wikipedia and Media Sites)



Other notables were university websites, mentioned by 40% (n=4) of Establishing participants and 50% (n=5) of Embedding participants. Retail websites were discussed by 40% of the Establishing participants and 50% (n=5) of the Embedding and Experiencing participants. Syllabus- and discipline-based sites were spoken of by 48% (n=15) of Emerging interviewees, 40% (n=4) of Establishing and Experiencing interviewees, but only by 20% (n=2) of Embedding participants. See Figure 4.

Several studies report that students look to Wikipedia for background information before moving on to other sources.[15] Francke and Sundin established that students felt looking up the information in print sources to be more time-consuming than searching the web.[16] McKiel's student subjects reported that while they trusted books (in print or online) more, they still used electronic resources more, desiring to spend as little time as possible finishing their assignments.[17] The critical importance of convenience for students was confirmed by Connaway, Dickey, and Radford as they found it to be consistently mentioned in students' evaluations of potential resources.[18]

FIGURE 4
Digital Sources and Educational Stages (Retail and University Sites)



This is supported by the participants of the V&R study as well. When Wikipedia was mentioned many of the Emerging stage participants believe that teachers, professors, and tutors do not accept Wikipedia as a legitimate source. However, the students admit to using Wikipedia and citing the references included in the Wikipedia articles but not formally acknowledging the use of Wikipedia; therefore, creating a covert, underground Learning Black Market. Perhaps, as students gain more confidence in their ability to tell whether the information on Wikipedia is reliable or not, they are more confident in revealing their uses of it as a resource.[19]

The use of retail sites is much lower by those in the Emerging stage. It may be because those in this stage include students who still are in high school/secondary school and who generally live with parents or guardians. In our sample, the upper-level college/university students indicate they use retail sites 40% of the time, which is an 8% increase of reported use of the Emerging Stage participants. The reporting of the use of retail sites is consistent at 50% for both the Embedding and Experiencing stages.

In light of edX and the gaining momentum of MOOCs, the virtual learning environments (VLE)/Moodle discussions with the interview participants seem to reveal less engagement with those systems by high school/secondary school seniors and college/university freshmen. It could be attributed to the fact that Moodle is not used in the high schools where the Emerging stage participants matriculate. The upper division undergraduates have the highest percentage of mentions of Moodle at 60%, and then the reported use drops to 20% with the Embedding graduate students, perhaps reflecting a lack of need to consult Moodle when they are in seminars, or writing theses, although they would need to interact with the system if they are teaching assistants or tutors. Forty percent of the faculty mention Moodle, reflecting their need to use it for instructional purposes.

Human Sources

Diehm and Lupton reported that students interacted with friends, fellow students, lecturers, tutors, and library staff, in addition to experts, professionals, and family.[20] They indicated that the contact person could be the primary source for the information or also could refer them to another source where they could find the information.

Interestingly, Raven found that students and faculty consider both fellow classmates/peers and librarians as sources for getting help.[21] However, while the professors rated the librarians higher than peers, students rated their classmates higher than a librarian. At the same time Education for Change reported that only 10% of students sought help from library staff to find resources.[22]

In a study of Millennial, Jones, Cox, and Banchoff reported that 60% of college-age Millennials talked with their parents at least once a day and another 25% once or twice a week.[23] They did point out that nearly half (48%) live at home. They also investigated Millennial use of technology and reported that only 10% of them did not have a Facebook account.

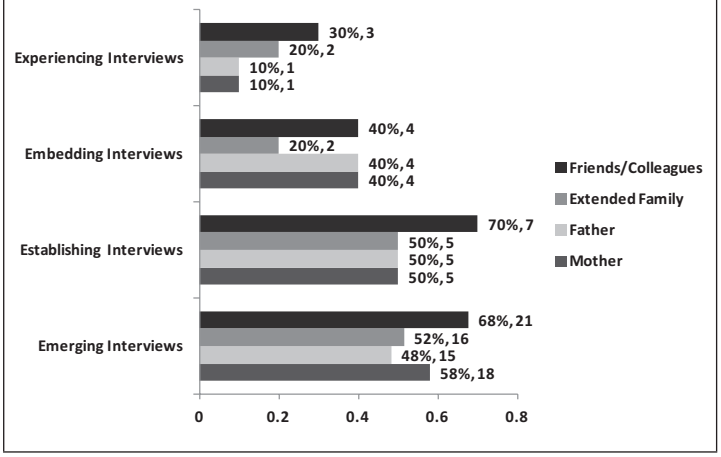
Dahlstrom found that students have a strong preference to contact their professors by direct forms of interaction, namely email, while texting, instant messaging, and online chatting were reserved more for interacting with other students.[24] Contrary to some belief, students still valued face-to-face (FtF) interactions.[25] Lenhart, Madden, and Hitlin found that teens view email as a means for more formal communication particularly with adults while they preferred to use instant messaging to talk to friends.[26] Connaway and Radford also found that Millennials valued FtF interactions and asked family and friends for information.[27] They also reported that students viewed email for "old people" or more formal communication and text and chat for friends and family and not librarians; hence, keeping their academic and social lives separate.[28]

This use of different modes of contact can be related to the student's motivation. Dahlstrom found that "most students prefer to keep their academic and

social lives separate," so much so that a student "friending" a current or even former teacher was still considered "taboo."[29] Dahlstrom proposed that while students may use a certain form of technology in their everyday life, that did not mean they wanted it in their academic life.[30]

V&R data analysis indicates much of the same findings as those mentioned above. There is a high level of mentions of contact with human beings across the participants in all of the educational stages. The differences between the different educational stages occur with the identification of the types of people who are contacted. Emerging students contact parents at rates of more than 48% (with a high of 58% for mothers). See Figure 5. Connaway, Prabha, and Dickey also found that undergraduate and graduate students contacted parents, with undergraduates contacting fathers more than mothers because fathers would find the information for them and mothers often wanted to teach them how to find the information.[31]

FIGURE 5
Human Sources and Educational Stages



They Emerging stage participants contacted friends 68% of the time, which is even more than their mention of asking one of their parents for information. These percentages closely match those of the Establishing upper-division undergraduate students. There is a striking decline in consultations with family members among graduate students, but there is a decline across the board in human consultation within the Embedding stage, perhaps reflecting an emphasis on individual work, and the need for graduate students in particular to figure things out on their own, before they can be recognized as experts in their field. See Figure 5. Connaway and Radford reported that graduate students were concerned about using virtual reference services because of their fear that the virtual reference transcripts would be seen by their professors and they would be perceived as not knowing some critical information within their discipline.[32]

Faculty mention consulting parents (mother and father mentions combined) 20% of the time, but friends/colleagues 30%, and librarians 20%. The faculty mentions of librarians comprise the highest percentage of any of the educational stages.

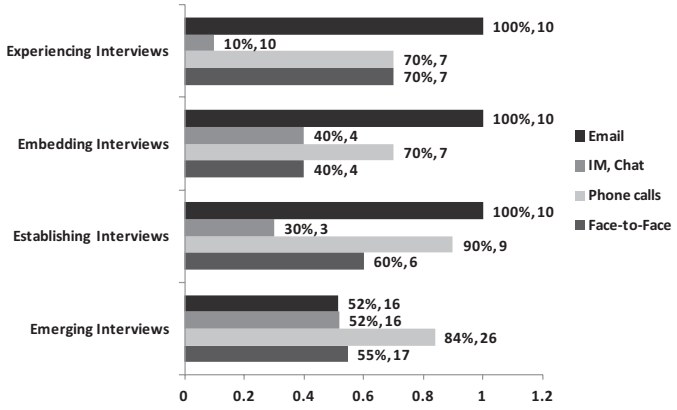
The importance of FtF communication among faculty is high, in comparison to other stages, for whom phone and other remote forms of communication are much more prevalent. Some of the phone mentions by the Emerging stage participants may be linked to students communicating with family and friends who are located in distant geographical locations. IM and chat are mentioned more than 50% of the time with the Emerging stage participants, and decreases with each stage, with a slight rebound among Embedding before plummeting among the Experiencing stage. Email is mentioned 52% by Emerging students who are about to enter or are entering institutions of higher education (applying for and attending university) and are required to use email for official communication. Once the individuals are acclimated to the university culture (Establishing, Embedding, and Experiencing educational stages), the mentions of email are at 100%. See Figure 6.

Library = Books

In a recent Pew Internet & American Lie Project report, a national survey of Americans (16 years and older) found that 80% declare borrowing books is a "very important" service libraries provide.[33] Additionally, of the 53% who had visited a library or bookmobile in the last year, 73% said they visit to borrow print books.[34] The perception of equating libraries with books has appeared consistently in the literature.

Prabha, Connaway, and Dickey stated, "Students tend to view the library as a place to borrow books, and to obtain books and articles on ILL."[35] Connaway and Radford consistently found that when individuals mentioned libraries, they usually mentioned books or getting books there.[36] In De Rosa's *Perceptions of Libraries and Information Resources* report for OCLC, a 41-year-old Canadian respondent may have articu-

FIGURE 6
Contact and Educational Stages



lated this idea of a library best when stating, *"Books, books, books, rows and rows of books, stacks of books, tables filled with books, people holding books, people checking out books. Libraries are all about books."*[37]

The findings from the V&R study support this perception of libraries and books. Twenty-two of the Emerging participants, 6 Establishing participants, and 6 Embedding participants also articulated this image of libraries. Interestingly, none of the Experiencing participants discussed libraries in terms of books. It may be attributed to the increased range of experiences that faculty have with the library, and in particular their first-hand experience with requesting and using electronic resources provided by the library. Particularly faculty in the science fields associated the library with their access to electronic resources, which are their most prevalent sources of information as opposed to books and monographs.

If people rely on digital sources and associate the library with books, they probably are less likely to think about the library in relation to digital sources. Shifting the perception to that of the Experiencing participants in the V&R study, i.e., libraries provide more than books, will help the libraries' image as a place that can provide digital and human sources.

Conclusion and Recommendations

By identifying how faculty and students engage with technology and how their engagement and digital literacies may or may not change as they transition between the educational stages, systems and services can be better designed and positioned in the context of the open web to meet the academic communities' expectations and to motivate their engagement with library resources. The V&R project results not only identify how and why students and faculty engage with technology and acquire their information within different contexts and situations, but how these behaviors change during their academic lifespan. If students are not taught effective information gathering and evaluation skills before they get to college, it is not reasonable to expect that they will spontaneously start engaging with library sources and systems when they enroll in college. It also is important to note the similarity of novice behavior no matter the educational stage—faculty, who don't know anything about cars, look for information about cars in much the same way that undergraduate students, who don't know about bioethics, search for information on this subject.

There are several implications in the V&R research results for enhancing library services, and creating systems to better meet the academic communities' information needs and expectations. Recommendations for libraries based on the literature and the V&R findings are:

1. Market and promote library services
2. Create simple and convenient interface designs
3. Provide a broad range of tools
4. Remove the barriers between discovering and accessing information

Market and Promote Library Services

Librarians need to market and promote their services and be very transparent about what they offer, in addition to books. This will help people to associate the authority of the library with the types of sources (full-text digital) that they value and expect in their everyday lives.

Zickuhr, Rainie, and Purcell report that 22% of their participants said that "they know all or most of the services their libraries offer now."[38] "Another 46% say they know some of what their libraries offer and 31% said they know not much or nothing at all of what their libraries offer."[39] One of the major findings of De Rosa's *Perceptions of Libraries and Information Resources* report was that most people do not know what services or formats of materials that are offered by libraries.[40] Embedding the librarian in the academic departments

and in the academic courses is a way to market and provide tools and services to the academic community.

Promoting special collections in Facebook and Wikipedia will expose these sources to a wider audience. The University of Nevada, Reno created profiles in Facebook for Joe McDonald, a sophomore at University of Nevada, Reno in 1913, and his girlfriend and future wife, Leola Lewis to promote the university's special materials associated with the university during this period of its history.[41]

The University of Washington has been adding references to its special collections in Wikipedia reference lists that pertain to the subjects. This not only is a way to promote the library's special collections but a way to provide authoritative references in Wikipedia since we have evidence that students do cite the reference is Wikipedia, but not the Wikipedia article itself.

Create Familiar and Convenient Interface Designs

Researchers are very familiar with other web-based searches like Google, Yahoo, or Amazon. Library web services ought to look similar despite providing very detailed ways of searching for information. The majority of users search by keywords and library search tools must have a simple and convenient interface.

The simple search box is only part of the user experience; ranking also is very important.[42] When searching the Internet it is rare to retrieve no information but common to do so in a library OPAC. Search engines will provide spelling tips or questions pertaining to a misspelled or no hit retrieval, yet library OPACs have been slow to provide this service.

The use of retail websites can set expectations among users in terms of the conventions of websites in terms of having the opportunity to chat with a store representative 24/7. Why can't libraries provide assistance at the time of need when people are having difficulties finding information on the university or library website and OPAC? The library at St. Louis University tested embedding a widget in the OPAC so that when a search retrieved no hits, a chat box appeared asking if the person needed help. Within the first hour, the service received 20 chat messages.

Amazon-like recommendations based on prior purchase, opportunities to rate reviews, and to preview music and text are familiar to most people and are expected features when searching for information, yet library systems have been slow on adopting these services. "A next step [for libraries] is actually to recombine the record-based data into resources about entities of interest."[43]

Provide a Broad Range of Tools

Librarians need to provide a broad range of tools and services in different media. Some people prefer walking into a library and talking FtF with a librarian or expert, others prefer to communicate virtually. While some users want to hold a book, many want electronic access. In the current economic environment it is difficult to provide everything to everyone. However, collaboration can be a powerful way to broaden the library's services.

Increased collaboration will provide the opportunity to expand the role of the library within the institution and beyond. Librarians need to collaborate with faculty to integrate library resources into the curriculum and virtual learning environments as well as to provide information literacy instruction at the time of need, i.e., for specific class assignments and projects; "work with scholars to provide access to their data sets, project notes, papers, etc. in virtual research environments and digital repositories; collaborate with information technology experts to develop online tutorials and user-friendly interfaces to local digital collections; collaborate with student support services to provide integrated services to students; and collaborate with librarians at other institutions to improve open source software, share resources, purchase materials, and preserve collections."[44]

Discovery and Access

Librarians need to remove the barriers between discovering and accessing information. Access is the key to meeting users' expectations since they want full-text information in both digital and paper formats, depending upon the context and situation of their needs. Older materials need to be made available digitally as researchers perceive a wealth of digital and varied resources as "better." The goal "is to promote discoverability of institutional resources, or to have them discovered."[45]

Librarians need to work to counter the notion of the library as only a physical space that houses books. There should be more "Resident" practice both on and off line since "one size fits no one."

Notes

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