The Utility of Digital Reference Services in Academic Libraries: An Annotated Bibliography

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Introduction and Scope

This annotated bibliography will focus on the utility of digital reference services in academic library settings. The purpose of this bibliography is to examine what types of digital reference services are being provided in academic libraries, and to determine how these services are being utilized by academic library users. The articles address a variety of topics, covering a broad scope of digital reference services. Several articles focus specifically on programs implemented at individual academic libraries. The majority of articles focused specifically on academic libraries; however several articles did address digital reference in other types of libraries. The articles were published from 2003 to 2010. Current articles were favored due to the ever-changing landscape of digital technologies and internet resources.

Description

For the purposes of this bibliography, digital reference is defined as any service provided to users that can be accessed remotely. This definition encompasses email and chat reference, library websites, and Web 2.0 technologies. Digital reference services are used in academic libraries for traditional reference work, library instruction, and the provision of internet resources for end-user searching. Academic libraries were chosen as the setting for this bibliography due to their constant change in user population, a population which has unique information needs. Academic library users are often engaged in research requiring a higher level of information literacy skills and a greater need to evaluate information. Academic libraries also often serve widespread populations of users who may not be located in the same area as the library itself. These unique characteristics of academic libraries make them an ideal setting for the use and evaluation of digital reference services.

Summary of Findings

The use of digital reference services in academic libraries is essential because it helps libraries to meet the needs of their users more effectively. Robinson (2008) discusses the current generation of undergraduate and graduate students as being digital natives. These digital natives have grown up in an environment surrounded by rapidly evolving technologies. This means that today’s academic library users think about technology and information differently than previous generations, and expect instant access to information. Naylor, Stoffel and Van Der Laan (2008) and Kelley and Orr (2003) found that academic library users prefer to do research from home using the library’s online resources. The new
generation of digital natives will clearly benefit from the availability of a variety of digital reference services.

The digital reference services included in this review are chat reference, email reference, Web 2.0 technologies, library websites, online resources, desktop sharing software, embedded librarianship and the creation of online modules. Each of these services can be accessed by users from their home or any other computer. Chat reference is a synchronous service that provides a way for users to ask reference questions in a real-time, online environment. The asynchronous companion to chat reference is e-mail reference, and many academic libraries provide these services simultaneously. Granfield and Roberston’s (2008) survey of user preferences for virtual reference services found that “VR satisfies a niche for some users, quite likely those who prefer to work outside the library” (p. 51). Their survey also assessed the importance of virtual reference options to users, and found that it is “seen as a significant service option for those who use it” (p. 51).

De Groote, Dorsch, Collard, and Scherrer (2005) also discussed the implementation of a collaborative digital reference program in a large academic library system. The chat reference service received 994 questions over a twelve month period, and the email reference service received 1,291 questions over the same period. An analysis of question type showed that the largest percentage of these questions were ready reference, in-depth/mediated questions, directional questions, and instructional questions. The results also indicated that undergraduates showed a preference for the chat reference service. Desai and Graves (2006) also analyzed question content of the Instant Messaging (IM) reference service at an academic library. The focus of this analysis was the level of instruction provided by the librarian during an IM session. In approximately 83% of IM transcripts, the librarian provided library instruction. This indicates that chat reference can be used as a medium for instruction as well as for reference questions.

Naylor, Stoffel, and Van Der Laan (2008) used a series of in-depth focus group discussions to assess why their chat reference service was not being utilized by students. Their findings showed that none of the students in their focus group were aware of the chat reference service even though most participants reported using instant messaging on a daily basis. These results indicate that marketing of digital reference services is an essential component of their provision. MacDonald, vanDuinkerken and Stephens (2008) described a marketing campaign on their university campus to promote digital reference services. This campaign increased the number of digital reference questions 360% in just one month. This study shows concrete evidence of the impact of marketing on digital reference services.
Breitbach and DeMars (2009) provide an overview of chat reference services, and address some of their challenges and limitations. They suggest adopting the mindset that “we should become accustomed to ‘multiple dialogues’ with a patron. In other words, we don’t always have to wait for the user to respond to use before sending another question or piece of information” (p. 84). This suggestion alludes to a key component of digital reference services, which is that they should be addressed as separate from but equal to traditional reference services.

The availability of digital reference services would not be possible without the rapid development of online technology. Shachaf and Shaw (2008) studied the impact of virtual reference on the core reference collection by assessing what resources were used most frequently by an academic library’s virtual reference service. The results showed that the vast majority of sources used in answering reference questions were online sources accessed through the library’s own website. This indicates the important of a library’s website and collection of online resources in meeting user’s needs.

The access point to the majority of digital reference services in academic libraries is the library’s website. Wright’s (2004) comparison of academic library websites found obvious inconsistencies in the presentation of online resources between the websites. The author suggests that the main improvements to be made on academic library websites include: decreasing the use of library jargon, locating library resource search functions on the main library page, and directing students to appropriate internet resources. Students in Kelley and Orr’s (2003) study reported that “remote access to full-text materials and citation and abstract databases are the most important services offered by the UMUC library” (p. 189). This result confirms the research on digital natives, and the academic library user preference for doing research outside of the physical library. Another preference among digital natives is the desire to interact with the internet. This preference can be evidenced by the explosion in Web 2.0 technologies.

Web 2.0 technologies are referred to as the read/write web, and emphasize user participation in the creation of online resources. Some of the most popular Web 2.0 technologies include blogs, wikis, tagging or social bookmarking, RSS feeds, and YouTube. All of these technologies allow users to interact with and create their own web content. Kim and Abbas (2010) studied the availability of Web 2.0 technologies on a random sample of academic library websites. The results showed that 73% of library web sites contained RSS feeds, and 65% of libraries had blogs. Between 12 and 30 percent of library websites contained other Web 2.0 technologies such as tagging, wikis, podcasts and Twitter. The
availability of these technologies on academic library websites shows that academic libraries are keeping up with the digital trends in order to meet users’ needs.

Luo (2010) surveyed academic librarians to determine how Web 2.0 technologies were being used in information literacy instruction. Web 2.0 technologies were used in a variety of teaching methods, and Luo found that the most important concepts being taught using Web 2.0 technologies were information evaluation and organization. Librarians are using Wikipedia to show students how easy it is to change the content of information as a lesson in evaluating online resources. Tagging has been used to teach users about controlled vocabulary and information organization. The results of this study show that the incorporation of Web 2.0 technologies into library instruction provides a unique way for librarians to communicate with their users. Academic librarians have engaged in the use of several other emerging technologies to meet the needs of patrons.

The user population of academic libraries is increasingly made up of students taking online courses. Konieczny (2010) discussed the practice of embedded librarianship in online courses. The librarian embedded in the online courses was responsible for the maintenance of and response to a library discussion board within each class and for the creation of a customized library resource folder for each class. The author reports that this embedded service has been rewarding for the librarian, the online teachers and the students because it allows for distance students to feel a more personal connection with their library and its resources.

Glassman, Habousha, Minuti, Schwartz and Sorenson (2009) discussed the use of desktop sharing software to communicate with academic library users. Desktop sharing software was used in virtual reference and in the creation of training presentations for common library instruction questions. Participants and librarians both reported positive experiences with this service, and the authors discovered an unexpected benefit of this service to be an increase in physical library usage by users of the online desktop sharing service. Vaughan (2009) explored the use of screen capture software to create online modules to assist Pharmacy students with a required research project. The author identified three key research issues and created online modules to address these issues. The outcome of the study was that “creation and promotion of the three online modules took roughly 15% of the time previously spent responding retroactively to student questions” (p. 218). Both of these studies indicate that new online technologies are enabling academic librarians to provide better service to their users.
Kibbee (2006) discussed the provision of digital reference services to unaffiliated users. The author found that “84 percent of private and 96 percent of public academic libraries permit unrestricted access to their libraries” (p. 468), yet 72 percent of academic library websites had policies noting that their services are intended for affiliated users. Allowing unrestricted access to digital reference services can put a burden on academic librarians’ time, and may open the library to copyright violations. The author suggests that academic libraries should post clear digital reference policies, make use of informed referrals and prioritize tasks for affiliated users in order to address this dilemma. Increased online access coupled with advanced technologies has created a new digital world that academic librarians must successfully navigate in order to meet users’ needs.

Academic library users are a unique population who have grown up in a digital world, and have different expectations of how they can access information. The rapidly advancing online technologies have made it possible for a student to study at a university across their state or even on the other side of the world. Academic libraries have been adapting to these changes by providing increasingly complex and varied digital reference services to their users. The importance of these digital reference technologies cannot be overstated, as they allow libraries to provide services to users that were unheard of just twenty years ago. One of the biggest challenges facing librarianship today is how to stay relevant in the face of an increasingly digitized world, and the utilization of digital reference services is the best way for academic librarians to meet this challenge.

Bibliography

Entry One


Abstract: Virtual reference service has become ubiquitous in academic libraries. The increased adoption of chat technology brings to light some of the challenges of providing high-quality reference service. The lack of a personal connection, increased transaction time, and technical problems are often cited. Techniques, such as conducting a reference interview or using online communication conventions, can make virtual reference as effective as face-to-face reference. Additionally, inclusion of video or Web annotation in the virtual reference session can add an element of personalization that might otherwise be missing. Virtual reference can be an emotionally rich, engaging, and effective form of reference service if these techniques and technologies are adopted.

Annotation: This article provides a comprehensive overview of the last 10 years of research on digital
reference. The authors identify the main problems experienced in traditional digital reference services, and provide concrete solutions for those problems. One solution is using embedded IM on the library website to decrease technical problems in communicating with users. This article shows how the availability of new web technologies and applications can enhance digital reference services.

**Search Strategy:** I used the Library Literature & Information Science Full Text database via WilsonWeb for this search. I chose this database because it contains information on library and information science. The full text of my article was available from informaworld.

**Database:** Library Literature & Information Science Full Text

**Method of Searching:** Keyword searching

**Search String:** I used the terms “college and university libraries” and “reference services/automation” as keywords in the advance search function, then limited my results to peer reviewed.

**Entry Two**


**Abstract:** The purpose of this study was to determine how successfully a large academic library with multiple reference departments and subject specialties could combine virtually to create one digital reference service. Questions were coded to determine who the users of the service were, the types of questions being asked, and the subject expertise of the librarian answering the question. The study found that the majority of questions were submitted by persons affiliated with the university, that ready reference and directional questions predominated, and that the librarians were able to successfully share the duty of answering the general reference questions while ensuring that the questions requiring subject expertise were answered by the appropriate subject specialists. Analysis of the types of questions will inform future decisions regarding webpage redesign, online instruction needs, and more appropriate FAQs (frequently asked questions.).

**Annotation:** A case study about the implementation of a centralized combined chat and email reference service at a multi-location academic library. The authors used random sampling or reference transactions, and used the strong evaluation method of coding transactions to measure all possible factors. This study used a large sample of reference transactions in its analysis. The authors found that having a centralized, inclusive digital reference service on a large academic campus is feasible and is utilized by all members of the community for a variety of reference questions.

**Search Strategy:** I found this article by doing a cited author search in Web of Science. I wanted to find articles that cited: Jerant, L.L., & Firestein, K. (2003). Not virtual, but a real, live, online, interactive reference service. *Medical Reference Services Quarterly, 22*(2), 57-68.

**Database:** Web of Science

**Method of Searching:** Citation search
**Search String:** I searched for “Jerant” as the author, and “2003” as the year. I selected the citation from *Medical Reference Services Quarterly*, abbreviated at MED REF SERV Q. I then checked to see which papers had cited this article.

**Entry Three**


**Abstract:** Purpose - The purpose of this study is to analyze one Instant Messaging (IM) reference service to determine to what extent instruction is or can be offered in this medium and whether patrons want or expect it. Design/methodology/approach - The authors surveyed IM patrons over a seven week period to determine whether they felt they could and did learn from chat transactions. Transcript content was analyzed to find out whether and how instruction is being offered. Findings - Results show that patrons overwhelmingly welcome instruction and that it is provided in a large majority of cases, using a variety of bibliographic instruction techniques. The way the question is phrased, however, affects the likelihood of instruction to some extent. Practical implications - The results of this study indicate that librarians should make a habit of practicing instruction in IM reference even when patrons do not appear to be asking for it. Originality/value - The relationship between instruction and virtual reference has not been fully explored in the literature. Reference and instruction librarians will benefit from this study's exploration of instruction in the IM medium.

**Annotation:** A discussion of instant messaging (IM) reference in an academic library setting. The authors analyzed transcripts of IM reference sessions over a 7 week period, and accompanied each session in that period with a survey. Transcripts were evaluated based on whether or not library instruction was given, and if so, what type of instruction was given. The analysis of these transactions was comprehensive and covered several variables. The authors also focused on instruction which is fairly unique among most digital reference analyses. The results show that students want library instruction from digital reference services, and that it library instruction can be offered effectively using the IM medium.


**Database:** Web of Science

**Method of Searching:** Citation searching

**Search String:** I searched for one of my other articles in the cited reference search by typing “Kibbee” as the author, and “2006” as the year. I checked the box for the article that was from the Journal of Academic Librarianship, abbreviated as J ACAD LIBR. I then clicked the related records and browsed the articles.

**Entry Four**

Abstract: Due to the proliferation of electronic resources, fewer users visit the library. Traditional classroom instruction and in-person consultations are no longer sufficient in assisting library users. Librarians are constantly seeking new ways to interact with patrons and facilitate efficient use of electronic resources. This article describes the development, implementation, and evaluation of a project in which desktop-sharing software was used to reach out to users at remote locations. Various ways of using this tool are described, and challenges and implications for future expansion are discussed.

Annotation: This article is a case study of the implementation and use of digital technologies to reach medical library users in new ways. The desktop sharing software implemented by this library system was used for on the spot virtual reference and to facilitate webinars in several useful topics. The limitation of this study is that it focuses on a very small user group in a medical library setting. The technologies used could easily be implemented in any academic library, and the results of this study indicate that desktop sharing software should become an integral part of digital reference services. Another interesting finding is that users with a successful digital reference experience became more likely to utilize traditional library services. This implies that an extemporaneous benefit of digital reference may be increasing a user’s comfort level with and use of the library.

Search Strategy: I used the Library Literature & Information Science Full Text database via WilsonWeb for this search. I chose this database because it contains information on library and information science. The full text of my article was available from informaworld.

Database: Library Literature & Information Science Full Text

Method of Searching: Keyword searching

Search String: I used the terms “college and university libraries” and “reference services/automation” as keywords in the advance search function, then limited my results to peer reviewed.

Entry Five


Abstract: This exploratory study investigated the help-seeking preferences of library users at two large urban universities in Toronto. Reference desk and virtual reference users were compared in terms of their perceptions of the options now available for obtaining reference help. The premise for the study was based on the assumption that a reasonable exposure to newer reference services, such as chat and email, had occurred, therefore allowing for an examination of emerging preferences for different types of services. Surveys were distributed to both reference desk and virtual reference users asking seven core questions exploring use and preference for reference services as well as habits and preferences for study location (in library off campus, etc.). The results suggest that the reference desk continues to be the most popular method of getting help in the library but virtual reference satisfies a niche for users who prefer to work outside the library. Those who use virtual reference tend to perceive their options for getting help differently from other users. Virtual reference users do not perceive virtual reference as a novelty or as a marginal service, but see it as a significant service option. In addition, the results show that virtual reference services may have a special appeal to graduate students since graduate students seem more likely to conduct their research outside the library. The study concludes with recommendations for planning and for future research.
**Annotation:** The survey method used in this study focused more on chat reference than email reference, which is a limitation because both chat and email can be considered digital reference. The survey also did not address the reasons behind each user’s preference for a specific type of reference. The study highlighted the fact that digital reference services fill a unique niche for academic library users, and cannot be removed without negatively impacting the academic community. Another conclusion from this research is that marketing should be an important aspect of the provision of digital reference services, as users need to be familiar with the service in order to find it useful.

**Search Strategy:** I used the INFOSCI OneSearch category of DIALOG to initially locate this article. I chose this OneSearch category because it is comprised of databases that contain literature on Library and Information Science.

**Database:** Gale Group Magazine DB(TM) [Dialog]

**Method of Searching:** Keyword searching

**Search String:** b infosci
s digital(w)reference
s academic(w)library?
s s1 and s2
rd
sort s4/all/py,d
t5/3/1-25

I then browsed through my results, many of which came from Reference & User Services Quarterly. I researched that journal through its website and determined that all articles are submitted for review, which tells me that any articles from this journal are acceptable for this assignment. I went to the Hagerty Library website and searched for this journal under journal title. I pulled up the SFX online access to the journal and inputted the article information to locate the full text. The full text of this article came from WilsonWeb.

**Entry Six**


**Abstract:** The University of Maryland University College (UMUC) is one of the eleven degree-granting institutions of the University System of Maryland (USM). UMUC plays a unique role among academic institutions in the State of Maryland in that it serves a large distant student population, with the proportion of students studying online approaching 50 percent of enrollments. Information and Library Services (ILS) at UMUC conducted a needs assessment survey to examine trends in student use of library resources, services, and instruction in order to understand how student usage patterns, needs, and preferences have changed as well as stayed the same. One important element of the survey was to obtain in-depth information on student usage patterns for electronic resources and services because (1) the library has increased delivery of these types of resources and services in the five years leading up to the current (2001) study and (2) several studies suggest that students are relying more heavily on online resources, both proprietary databases and the “free” Web.(FN1) Therefore, ILS was interested in determining whether the shift to more online delivery of classes, and the simultaneous shift observed in user behavior in libraries in general (i.e., relying more heavily on online resources), would also affect student usage patterns and dependence on the physical library and online resources at UMUC. The findings of the survey followed national trends and demonstrated that nontraditional, predominantly
part-time students' usage patterns have changed and now favor the use of electronic resources (the Internet, in particular) and also mirror trends observed in traditional student behavior toward libraries and library resources in many important respects.

**Annotation:** This comprehensive study was distributed to a random sample of UMUC students, which allows for a good distribution across the UMUC community. Random sampling is also ideal because it surveys all students instead of students who are already known library users. The findings of this survey show a strong preference for online resources in all students regardless of the type of student (undergraduate vs. graduate, online vs. on campus). This suggests that librarians in academic settings should provide online access to as much information as possible to meet the needs of a new generation of users.

**Search Strategy:** This article was referenced in another article I found for this project.

**Database:** N/A

**Method of Searching:** Footnote chasing


**Entry Seven**


**Abstract:** The author investigates issues faced by academic research libraries in providing virtual reference services to unaffiliated users. These libraries generally welcome visitors who use on-site collections and reference services, but are these altruistic policies feasible in a virtual environment? This paper reviews the use of virtual reference service by unaffiliated users to determine their expectations, assess level of demand, and provide recommendations on how libraries should respond. Virtual reference desks can serve their primary constituency and function as a public good for external users if they understand and articulate their role as mediators in the information seeking process.

**Annotation:** This article addressed digital reference in academic libraries from an ethical perspective. The author thoroughly discussed the question of how much digital reference service to provide to unaffiliated users, and addressed many possible implications of that decision. It appears that several methods were used to collect data; however the author should have presented the methods and results in a clear and more structured way. The author’s conclusion was that digital reference services should be provided to unaffiliated users, but that these services should be differentiated from the services provided to affiliated users.


**Database:** Web of Science

**Method of Searching:** Citation searching
Search String: I searched for one of my other articles in the cited reference search by typing “DeGroote” as the author, and “2005” as the year. I checked the box for the article that was from the College & Research Libraries journal, abbreviated as COLL RES LIBR, then clicked the related records and browsed the articles. I accessed the full text of this article using SFX from WilsonWeb.

Entry Eight


Abstract: This study investigates the adoption of Library 2.0 functionalities by academic libraries and users through a knowledge management perspective. Based on randomly selected 230 academic library Web sites and 184 users, the authors found RSS and blogs are widely adopted by academic libraries while users widely utilized the bookmark function.

Annotation: This article seeks to examine the availability of Web 2.0 technologies on academic websites, and assess how library users adopt these technologies. The methodology for the academic website portion of this research is sound; the author used a large, random sample with easily measurable results. The methodology on the user portion was not as sound because the author used a small sample from a limited population. The results of this portion of the research cannot be applied to users of academic libraries in general. The strength of this article is that it shows how academic libraries are using Web 2.0 technologies, and makes the case that Web 2.0 technologies offer a unique way for academic libraries to interact with users.

Search Strategy: I found this article by browsing the most current editions of The Journal of Academic Librarianship. I know that this journal is peer reviewed, and that its focus is on academic libraries. I felt that browsing the most current editions of this journal would help me find articles that focus on newer trends in digital reference.

Database: N/A

Method of Searching: Browsing

Search String: I found the full text of this article through SFX from ScienceDirect.

Entry Nine


Abstract: Embedded librarianship gives librarians a prime opportunity to have a direct, positive impact in a clinical setting, classroom setting, or within a working group by providing integrated services that cater to the group's needs. Extending embedded librarian services beyond the various physical settings and into online classrooms is an exceptional way for librarians to engage online learners. This group of students is growing rapidly in numbers and could benefit greatly from having library services and resources incorporated into their classes. The author's services as an embedded librarian in fully online courses at a medium-sized university will be discussed, as will strategies, lessons learned, and opportunities for engaging in this realm. To develop a foundation of knowledge on embedded librarianship, an overview of this topic is provided.
Annotation: The author provides useful suggestions for the incorporation of librarians in online classes. This article focuses on one program of embedded librarianship in an online class run through Blackboard. Although the librarian reported positive results, there was no measure of the utility of the embedded librarian to students in the class. The author could have easily asked students to fill out a survey or add a question to the course evaluation or have had the professor assess student performance. This would have enabled the author to provide measurable results.

Search Strategy: I found this article by browsing the website for the Medical Reference Services Quarterly journal. I decided to browse the articles from the last two years in this journal because I knew it contained peer reviewed articles about reference services in an academic setting.

Database: N/A

Method of Searching: Browsing

Search String: I accessed the full text article from informaworld.

Entry Ten


Abstract: Survey and semi-structured interviews were conducted in this study to examine the adoption of the Web 2.0 technology in information literacy instruction. Findings suggest that librarians use Web 2.0 tools in three different levels, and overall it has a positive impact on teaching and learning.

Annotation: This article used the survey method to analyze the use of Web 2.0 technologies to teach information literacy to students. Although the survey was not directed specifically to academic librarians, 98% of respondents worked in an academic library setting. The survey used a small sample that was targeted specifically to members of a single listserv. The author could have distributed the link to this survey to a larger population of academic librarians. The author makes a strong case for the utility of Web 2.0 technologies in teaching information literacy skills, particularly the skills of information evaluation and organization.

Search Strategy: I found this article by browsing the most current editions of The Journal of Academic Librarianship. I know that this journal is peer reviewed, and that its focus is on academic libraries. I felt that browsing the most current editions of this journal would help me find articles that focus on newer trends in digital reference.

Database: N/A

Method of Searching: Browsing

Search String: I found the full text of this article through SFX from ScienceDirect.

Entry Eleven

Abstract: Current information science literature says that library services need to be marketed to users. While the literature has a lot of advice on how to develop a marketing plan, there have been few reports on the actual implementation of a marketing campaign and the resulting impact on academic library services. This case study describes the design, implementation, and evaluation of a marketing campaign to promote the use of a new virtual reference service at Texas A&M University. The overall impact of the marketing campaign on the use of the service is discussed.

Annotation: Academic libraries operate within strict budgets, and may have to justify the cost of digital reference services by providing statistics on usage. Therefore, increasing the use of digital reference services is an essential component of the provision of those services. This article focuses on the very comprehensive marketing plan for digital reference services at a large university. The identification of target markets in the article highlights how digital reference services are useful to an increasing population of academic library users. The efforts of the marketing campaign outlined in this article show a significant increase in use of digital reference that is attributed to several low cost marketing strategies which can be applied in academic settings around the world.

Search Strategy: I used the INFOSCI OneSearch category of DIALOG to initially locate this article. I chose this OneSearch category because it is comprised of databases that contain literature on Library and Information Science.

Database: Gale Group Magazine DB(TM) [Dialog]

Method of Searching: Keyword searching

Search String: b infosci
s digital(w)reference
s academic(w)library?
s s1 and s2
rd
sort s4/all/py,d
t5/3/1-25
I then browsed through my results, many of which came from Reference & User Services Quarterly. I researched that journal through its website and determined that all articles are submitted for review, which tells me that any articles from this journal are acceptable for this assignment. I went to the Hagerty Library website and searched for this journal under journal title. I pulled up the SFX online access to the journal and inputted the article information to locate the full text. The full text of this article came from WilsonWeb.

Entry Twelve


Abstract: Despite early reports of patron enthusiasm with chat reference, usage of this service has been disappointing at some academic libraries, including our own. To probe why students have not used our chat reference service more, we conducted in-depth focus group discussions with upper level undergraduates on our campus. We questioned participants—all nonusers of chat reference—about their research behaviors and their reference service preferences. Responses suggest users desire both a
variety of reference services and more personalized reference services. We discuss implications for how we deliver chat reference.

**Annotation:** The main focus of this article is an evaluation of chat reference services, which excludes other digital reference services such as email. The use of focus groups allows for a more in depth perspective on the motivations of users of the academic library, but does not allow for quantitative measurements of usage and preference. The researchers involved in this study could have administered a survey to participants at the conclusion of each focus group to provide for different methods of analysis. The focus groups were made up of a sample of students with varying levels of previous library usage, allowing for a better understanding of the needs of the academic population as a whole. The article also discusses the impact of the digital divide and the importance of physical resources such as computers with internet access in academic libraries.

**Search Strategy:** I used the INFOSCI OneSearch category of DIALOG to initially locate this article. I chose this OneSearch category because it is comprised of databases that contain literature on Library and Information Science.

**Database:** Gale Group Magazine DB(TM) [Dialog]

**Method of Searching:** Keyword searching

**Search String:** b infosci s digital(w)reference s academic(w)library? s s1 and s2 rd sort s4/all/py,d t5/3/1-25

I then browsed through my results, many of which came from Reference & User Services Quarterly. I researched that journal through its website and determined that all articles are submitted for review, which tells me that any articles from this journal are acceptable for this assignment. I went to the Hagerty Library website and searched for this journal under journal title. I pulled up the SFX online access to the journal and inputted the article information to locate the full text. The full text of this article came from WilsonWeb.

**Entry Thirteen**


**Abstract:** Purpose - The so-called 'digital native' - the first generation of students and learners who have been born and raised in a world of digital technologies - is now in our universities and, hopefully, using library services. This paper aims to survey recent debate about the delivery of information services to the 'digital native', using Hong Kong academic libraries as a case study to reflect on the appropriateness of the services offered. Findings - The paper finds that libraries will be better served in the long run if they consider in what particular ways they appeal to students, and focus on developing services that are aligned with student preferences in their access to and use of information. Rather than competing with search engines, libraries can learn from the way in which they design their services, and through link resolving software can combine the convenience of the web with the quality of their own resources. Identifying reasons for using the library which are not satisfied by the internet, and promoting these
Carrie Moran - 16 -

through improved virtual and physical access help to define the niche that academic libraries serve and how they can build a better affinity with their student community.

**Annotation:** This article focuses on the perceived shift in academic library users to “digital natives”, and discusses why academic librarians should adapt to meet the changing information needs of these users. The author chose not to perform any independent research, but uses others’ works to support his theories. The author also includes a discussion of the integration of Web 2.0 technologies in academic library services. The article shows that academic libraries need to continuously evaluate and incorporate new technologies to support the digital generation of users.

**Search Strategy:** I found this article by searching Library & Information Science Abstracts (LISA). I chose this database because it contains articles that are relevant to the LIS field.

**Database:** Library & Information Science Abstracts (LISA)

**Method of Searching:** Controlled vocabulary search

**Search String:** I used the thesaurus to locate appropriate descriptors. The descriptors I used for this search were “academic libraries” and “internet”. I did an advanced search using each one of these terms in the descriptor field. I then clicked the Peer-Reviewed Journals tab to limit my search to items from scholarly journals. I accessed the full text of this article through SFX through ProQuest.

**Entry Fourteen**


**Abstract:** As the use of electronic reference sources becomes commonplace, virtual reference services are expanding in scope, modes, and popularity. Simultaneously, reference practices are evolving as well. One concept that may be challenged by these trends is the notion of the core reference collection. What are the sources that form this core collection, and what are its characteristics? Are similar sources used to answer users’ questions in virtual and traditional reference? How do core collections of public and academic libraries differ? An analysis of 1851 e-mail and chat reference transactions from public and academic libraries reveals that the notion of a core reference collection persists in the world of virtual reference services. In both types of libraries, responses to patrons showed a skewed bibliographic distribution; librarians used a small group of sources to answer most of the questions. Almost all sources used were electronic. Academic libraries tended to make greater use of fee-based sources, but public libraries more often used sources freely-available on the Web.

**Annotation:** This article discusses a comparison between reference sources used in an academic library’s digital reference service and a similar service from a public library. The academic library digital reference service relied more heavily on a smaller set of sources, and was more likely to use fee based sources. Sources from the library’s own catalog and resources were the most frequently used, which implies that users of digital reference services are getting access to the same materials as in person reference users. The limitation of this study is that it focuses solely on one digital reference program for each type of library, so results may not be representative of digital reference services as a whole.

**Search Strategy:** I used the INFOSCI OneSearch category of DIALOG to initially locate this article. I chose this OneSearch category because it is comprised of databases that contain literature on Library and Information Science.
Database: Social SciSearch [Dialog]

Method of Searching: Keyword searching

Search String: b infosci
s digital(w)reference
s academic(w)library?
s s1 and s2
rd
sort s4/all/py,d
t5/3/1-25

When I saw the title of this article I thought it looked promising, so I looked up the journal online to make sure that articles were peer reviewed. Once I had confirmation of the scholarly nature of the journal, I looked up the journal on the Hagerty Library website. I used SFX to locate the full text, which came from ScienceDirect.

Entry Fifteen


Abstract: When students are given assignments with specific information needs, they may turn to the library for help. The UNC Health Sciences Library developed three short online modules to teach first-year pharmacy students how to find early/animal studies, mechanism of action information, and specific study types in an effort to lessen demand on the reference desk. The modules filled two goals: to free up time that had been spent on three common low-level questions and to provide a pedagogically sound online tool to teach students how to find answers to these three questions. The modules were created using Adobe Captivate. Developing and promoting the modules took three hours of the pharmacy librarian's time compared with nearly 23 hours spent answering individual questions via e-mail, in consultations, and at the reference desk before the modules were introduced. After introducing the modules, only one student asked for help from the library compared to more than 60 who viewed the online modules at least once.

Annotation: An often overlooked aspect of digital reference services is the application of digital reference to library instruction. One promising format for online library instruction is the use of online modules. The greatest benefit of online modules is that they are presented in a format that appeals to all types of learners: they incorporate visual, sound and kinesthetic modalities. The results of this study are dramatic, the creation of 3 online modules reduced time spent on two specific reference questions from 22.5 hours to 3.5 hours. The results of this study make it clear that there are many promising applications of online modules in an academic library setting.

Search Strategy: I found this article by browsing the website for the Medical Reference Services Quarterly journal. I decided to browse the articles from the last two years in this journal because I knew it contained peer reviewed articles about reference services in an academic setting.

Database: N/A

Method of Searching: Browsing

Search String: I accessed the full text article from informaworld.
Entry Sixteen


**Abstract:** Academic libraries have the opportunity through their Web pages to present to the university community recommended sites and appropriate techniques for searching the Internet. But in the design and organization of home pages, academic libraries often provide inadequate navigational paths to sites that provide search engine selection and evaluation criteria. The author conducted a study of the home pages of 114 academic libraries that belong to the Association of Research Libraries (ARL) to determine their paths to Internet search engines. This paper presents the study results and makes recommendations for improvement.

**Annotation:** An analysis of 114 academic library web pages whose goal was to evaluate the presentation of internet materials and internet instructional materials. The author found wide discrepancies among academic library websites, and offers several straightforward suggestions for academic libraries to improve access to internet resources. The greatest limitation of the information in this study is that the academic library websites were evaluated in 2003, and the presentation of internet resources is likely to be very different seven years later. However, the author’s suggestions are still relevant as they discuss the use of library jargon and annotations, concepts that are still relevant today.

**Search Strategy:** I found this article by searching Library & Information Science Abstracts (LISA). I chose this database because it only contains articles that are relevant to the LIS field.

**Database:** Library & Information Science Abstracts (LISA)

**Method of Searching:** Controlled vocabulary searching

**Search String:** I used the thesaurus to locate appropriate descriptors. The descriptors I used for this search were “academic libraries” and “internet”. I did an advanced search using each one of these terms in the descriptor field. I then clicked the Peer-Reviewed Journals tab to limit my search to items from scholarly journals. The full text of this article was found through SFX from WilsonWeb.

**Conclusion and Personal Statement**

The impact of this assignment has been immeasurable for me. This is my first semester at Drexel, and I have never worked in a library setting. I came into this quarter as a blank slate. My only knowledge of libraries was from personal use, and from being the daughter of an accomplished Library Media Specialist. I was initially apprehensive about the annotated bibliography project because I’ve never written an annotated bibliography, and because I was unsure of a good topic to choose. Now that I’ve completed the project, I feel that I chose the perfect topic.

My favorite hobbies are reading and computers, and my favorite thing to do in an academic setting is scholarly research. This project combined all of those passions, and has been very rewarding
for me. In the course of finding more information about the digital technologies that exist in the world, I decided to change my concentration to Digital Libraries. I feel that I may have come to that decision eventually, but my work on this project convinced me that it was a necessary change. This project has essentially impacted my entire library career because it helped me to discover that I’d like to work with the digital side of libraries in an academic environment.

Another benefit of this project is that it taught me how to research properly. For my undergraduate degree I used a random search strategy and wasn’t as concerned with how I found the information. I was able to be successful, but I quickly realized that my former style of research wouldn’t work on the graduate level. I loved using the search strategy worksheets to develop my search terms, and I feel that the precise recording of where and how I found each piece of information is a skill that I will rely on throughout my career. This project has instilled me with a great deal of confidence in my ability to extract information from any source, and to organize that information in a useful way. As I stated above, I’ve never had to write an annotated bibliography, and I can honestly say that it was the most challenging and most rewarding assignment I’ve ever completed. I look forward to my future studies knowing that I have a solid foundation in research methods and search skills.