

**“Seeking Synchronicity: Evaluating Virtual Reference Service from User,
Non-user, and Librarian Perspectives”**

**IMLS Interim Performance Report
May 1, 2007**

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Award Number:

- ✓ LG-06-05-0109-05

Awardee Institution Names:

- ✓ Rutgers, The State University of New Jersey
- ✓ OCLC Online Computer Library Center

Interim Performance Report: From October 31, 2006 to May 1, 2007

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2.0 Performance Description

2.a Purpose of the Project:

"Seeking Synchronicity: Evaluating Virtual Reference Services from User, Non-user, and Librarian Perspectives," is studying and evaluating the practice, sustainability, and relevance of virtual reference services (VRS). The partnering institutions are Rutgers University School of Communication, Information and Library Studies and OCLC, Online Computer Library Center, Inc. VRS are human-mediated, Internet-based library information services. The rapidly increasing use of remotely accessed, digital reference resources, such as full-text indexes and e-journal collections, has increased the demand for librarians to provide reference services online, and this project aims to improve their ability to respond to this demand. The project focuses on live chat reference services and will provide research-based recommendations for VRS to increasing user satisfaction and attract non-users and for use in software development and interface design. Project outcomes will also include a research agenda for user-centered VRS, as well as a theoretical model that incorporates interpersonal and content issues.

2.b Research Activities:

Librarian Online Surveys: The librarian online surveys were developed, pre-tested, and administered to a total of 175 virtual reference librarians from across the country, recruited through professional listservs. The results of the survey are in the process of detailed analysis, including a theme analysis of the open-ended questions that address critical incidents in VRS encounters. See Appendix A for Librarian Online Survey Results.

User and Non-User Online Surveys: Pre-tests for both user and non-user online surveys have been completed and finalized survey instruments will be posted to the Web in early May.

User Survey Participants: QandANJ, the statewide VRS in New Jersey has provided a list of email addresses of their users that will be used to recruit user online survey participants. Additionally, we are seeking the contribution of other user emails from QuestionPoint, which is owned by OCLC, Online Computer Library Center, Inc. Approximately 200 VRS users will be recruited who will complete surveys by late May.

Non-User Survey Participants: We have received formal Internal Review Board approval from the College of Charleston to have access to their email listservs for recruiting students for participation in the non-user online surveys. We are also recruiting non-users from Rutgers University as well as from area high schools. We will recruit approximately 200 non-users who are expected to complete their surveys by late May.

Librarian Telephone Interviews: Following the completion of the Librarian Online Surveys, a telephone interview instrument has been developed to address VRS interactions in more depth. This instrument has been pre-tested and finalized. Using professional listservs, we have successfully recruited 100 librarians from across the country to complete these interviews which will begin in early May and conclude in early June. To manage the research team's efforts to complete the interviews, a password protected website has been developed which will enable the team to communicate easily about scheduling and tracking interviews.

User and Non-User Telephone Interviews: User and non-user telephone interview instruments will be developed based on the findings of the online surveys as well as the focus groups that were previously completed. The draft instruments will then be pre-tested and revised so interviews will begin in June and conclude in July.

Research Team Communication: The grant team holds a weekly meeting to address projects and timelines, which includes members of the team within Rutgers and at OCLC via conference call. In addition, a collaborative wiki and project website have been developed and are constantly updated to further enhance team communication.

Results: According to the scope of research undertaken in the grant, there are four primary phases of data collection. Phase I involved focus groups; Phase II involves transcript analysis; Phase III calls for online surveys; and Phase IV will consist of telephone interviews. As noted above, Phases III and IV are in progress. Results from Phases I and II are summarized below.

Phase I – Focus Groups. During Phase I, eight focus group interviews with VRS users, non-users, and librarians were conducted to gain insight into their perspectives and to inform development of online surveys and phone interviews. Results from these focus groups have been presented at several conferences and have been disseminated through two publications (Radford & Connaway, in press, 2007; Connaway & Radford, 2007, see full bibliographic information below).

Phase II - Transcript Analysis. During a twenty-month period, a random sample of 50 transcripts per month are being pulled from QuestionPoint, a VRS service, to total 1300 transcripts. An OCLC team member strips all personal identifiers from the transcripts, including names, e-mail addresses, and any other information that could link the transcripts back to individuals, prior to dissemination to other project members. So far, 900 VRS transcripts have been selected and stripped of personal identifying information. Eight hundred fifty of these transcripts have been analyzed and coded by: Type of Question, Subject of Question, Geographic Location, Type of Library, and Session Duration. As a result of the “Type of Question” analysis, the team has been able to embark upon another analysis to examine the accuracy and completeness of ready reference answers in VRS, building on exciting recent research in this area.

In addition, 600 of the transcripts have undergone another analysis which codes the relational content (interpersonal communication between users and librarians). The transcripts also have been examined to identify interactions with teenaged users of VRS. This group of teenager’s transcripts was used to analyze the differences in interaction between this group in comparison to other VRS users.

The transcripts have provided a rich source of information that continues to suggest new areas for analyses. One result of the transcript analysis has been the development of a new coding scheme for Question Clarification to explore and to better understand the reference interview process between librarians and users in VRS. To date, 600 transcripts have been coded using this new category scheme which will certainly make a significant contribution to the body of research

on question clarification and reference interviewing. See Appendix B for Question Clarification Coding Scheme and Nodes and Descriptions.

Timeline Updates:

Online Survey Development: The user and non-user online surveys are scheduled to be completed in May 2007, which is behind the projected schedule of the grant research activities. We had a slower response to participation than expected, and have sought to address participant recruitment to get the research activities back on schedule, as well as to improve processes that hampered our data collection.

Expanding Recruitment: We will be expanding our recruitment of non-users from other institutions of higher education, including Ohio State University, in addition to Rutgers University and the College of Charleston. We will use listservs and post flyers in public places (including college or university bus stops) in order to gain participants at a faster rate than our previous efforts.

Development of Better Processes: In addition to expanding recruitment efforts, we have developed better technological tools to improve the process for signed consent forms and participant registration. Previously, we were dependent on exchanging emails, faxes and US mail to receive the signed consent forms which were needed before participants could be surveyed or engage in focus groups. This cumbersome process severely slowed down our recruitment process, thus delaying data collection and analysis. We have now received Rutgers University Internal Review Board approval to change the paper consent form process to an electronic process. Potential participants can now complete an online consent form and click the 'submit' button, which immediately transmits the form to us. This method will enable us to process participants much more quickly, will keep data collection on track, and will increase our ability to accomplish our research in a timely fashion.

2.c Project Outputs and Activities

Publications

Radford, M. L. & Connaway, L. S. (in press, 2007). "Screenagers" and live chat reference: Living up to the promise. *Scan*.

Connaway, L. S. & Radford, M. L. (2007). The thrill of the chase in cyberspace: A report of focus groups with live chat librarians. *Informed Librarian Online [electronic journal]* [Available: <http://www.informedlibrarian.com/guestForum.cfm?FILE=gf0701.html>]

Print Proceedings for Refereed Paper

Connaway, L. S. & Radford, M. L. (in press 2007). *Service sea change: Clicking with screenagers through virtual reference*. Accepted for the print proceedings for the Association for College and Research Libraries, 13th National Conference, Baltimore MD, March 29-April 1, 2007.

Online Proceedings for Refereed Paper

Radford, M. L. & Connaway, L. S. (2006). *Information realities: Shaping the digital future for all*. Paper accepted: *Seeking sustainability and singularity: evaluating virtual reference from user, non-user, and librarian perspectives*. Online proceedings of The American Society for Information Science and Technology Conference, Austin, TX, November 3-9, 2006. [Available: <http://www.asis.org/Conferences/AM06/proceedings/openpage.html>].

Conference Papers Presented

During the period between the last interim report in October 2006, grant results have been presented at several conference venues as follows.

- Radford, M. L. (2007). *Analyze this: Focus groups as assessment agents*. Presented at the New Jersey Library Association, Long Branch, NJ, April 24-25, 2007.
- Connaway, L. S. & Radford, M. L. (2007). *Service sea change: Clicking with screenagers through virtual reference*. Presented at the Association for College and Research Libraries, 13th National Conference, Baltimore MD, March 29-April 1, 2007.
- Radford, M.L., Connaway, L. S., & Williams, J. DeAngelis (2007). *Face-work in computer-mediated communication: An analysis of live chat reference encounters*. Presented at the New Jersey Communication Association Conference, Kean University, NJ, March 24, 2007.
- Connaway, L. S. (2007). *Why not libraries? Users identify their information preferences*. Presented at the Central Ohio Chapter, American Society for Information Science and Technology (CO-ASIS&T), Dublin, OH, March 6, 2007.
- Radford, M.L. & Connaway, L. S. (2007). *Reflections of reference practice: Analyzing virtual reference transcripts*. Presented at the ALISE Conference, Seattle, WA, January 16-19, 2007.
- Radford, M.L. & Connaway, L. S. (2006). *Expect the unexpected: Urban screenagers' communication and information seeking preferences*, Presented at a preconference: *Urban communication: Creating sites for connection and action*. National Communication Association, San Antonio, TX, November 15, 2006.
- Radford, M.L. & Connaway, L. S. (2006). *Seeking sustainability and singularity: Evaluating virtual reference from user, non-user, and librarian perspectives*. Presented at the American Society for Information Science and Technology Conference, Austin, TX, November 3-9, 2006.
- Radford, M. L. & Connaway, L. S. (2006). *"Screenagers" and virtual (chat) reference: The future is now!* Presented at the New Jersey Association of School Librarians, Long Branch, NJ, October 29-31, 2006.

Upcoming Conference Presentations

Radford, M.L. & Connaway, L. S. (2007). Panel organizers and presenters of paper: *Connecting in cyberspace: The Millennial Generation and virtual reference service*. Paper accepted for presentation on panel: *Behaviors and preferences of digital natives: Informing a research agenda*, at the American Society for Information Science and Technology Conference, Milwaukee, Wisconsin, October 18-20, 2007.

- Radford, M.L., Connaway, L. S., & Williams, J. DeAngelis (2007). *Virtual rituals: applying Goffman's face-work to an analysis of live chat reference encounters*. Paper accepted for presentation at the Library Research Seminar IV, London, Ontario, October 10-12, 2007.
- Connaway L.S. & Radford, M.L. (2007). *Focusing on change: Connecting to both Millennials and Baby Boomers*. Paper accepted for presentation at the i3 (Information: Interactions and Impact) conference, Aberdeen, Scotland, June 25-28, 2007.
- Radford, M.L. & Connaway, L. S. (2007). *Are we getting warmer? Query clarification in virtual reference*. Paper accepted for presentation at the Library Research Round Table, American Library Association Conference, Washington DC, June 21-27, 2007.
- Radford, M.L. & Connaway, L. S. (2007). *Not dead yet! Ready reference in live chat reference*. Paper accepted for presentation at the 13th RUSA New Reference Research Forum, American Library Association Conference, Washington DC, June 21-27, 2007.

Conference Paper Submitted for Possible Presentation

- Radford, M. L., Connaway, L. S., & Williams, J. DeAngelis (2007). *Encountering interpersonal rituals in CMC: Face-work in live chat reference interactions*. Paper submitted for possible presentation as part of a panel: *Moonlighting in mediated talk and text at work: Identity work, relational management, and emotional labor in institutional interaction* at the National Communication Association Conference, Chicago, IL, November 15-18, 2007.
- Connaway, L.S., de Gaia, J., & Radford, M.L. (2007). *Social networking: The confluence of content, collaboration and community*. Paper submitted for possible presentation at the Online Information Conference, London, England, December 4-6, 2007.

Online Proceeding under Review

- Radford, M.L. & Connaway, L.S. *Virtual windows: Observing chat reference encounters through transcripts analysis*. Submitted for Online Proceedings as part of a Symposium: *The role of observation and health of community* presented at the 19th International Association for People-Environment Studies, Alexandria Egypt, September 11-16, 2006.

Papers in Progress

- Connaway L.S. & Radford, M.L. (2007). *Focusing on change: Connecting to both Millennials and Baby Boomers*. To be submitted to *Libri*.
- Radford, M.L. & Connaway, L.S. *Face-work in chat reference*. To be submitted to *Library & Information Science Research*.
- Radford, M.L. & Connaway, L.S, et al. *Query clarification in virtual reference*. To be submitted to a peer-reviewed LIS journal.
- Radford, M.L. & Connaway, L.S, et al. *Not dead yet! Ready reference in chat encounters*. To be submitted to a peer-reviewed LIS journal.
- Radford, M.L. & Connaway, L.S. *Expect the unexpected: Urban screenagers' communication and information-seeking preferences*. To be submitted to a peer-reviewed LIS journal.

2.d. Research Outcomes:

Broad Interest in the Seeking Synchronicity Research: The Seeking Synchronicity Grant research is receiving a great deal of interest from VRS librarians and the data collection, analysis and dissemination is contributing to the library profession. Librarians, trainers, as well as other scholars in the Library and Information Science (LIS) field, have expressed their interest in the

research and the desire for the research findings to be shared. One librarian in Madison, Wisconsin wrote to ask permission to use slides from the Library Research Round Table presentation at the American Library Association in June 24, 2006 to help her devise a VRS training session. Another librarian from Maryland wrote to ask permission to use information from the grant research and also sought recommendation about what to include in her upcoming workshop for librarians. She also complimented the grant research, "Thank you for your work. It really helps us in training staff." A trainer from the PALINET library consortium in Pennsylvania wrote to ask if he could use information from the grant research for his workshop, and thought this information would be "clearly beneficial to the workshop participants as resources they can consult afterward." Additionally, information from the grant research that has been posted receives attention on the web. See Appendix C for description of blog posting statistics from the Library Garden (<http://librarygarden.blogspot.com/>) group blog where PI Radford posts grant research results.

2.e. Other Results

The Seeking Synchronicity project has maintained a website since the start of the grant, <http://www.oclc.org/research/projects/synchronicity/>. The number of site visits and downloads of professional conference presentations continues to indicate a significant interest in our grant research, findings, and materials.

Page views or downloads for the past six months is represented in the table below, spanning from November 1, 2006 to April 30, 2007:

	Nov 06	Dec 06	Jan 07	Feb 07	Mar 07	Apr 07	Total
Views	635	530	592	620	622	940	3939
Downloads	954	856	940	1078	1503	1837	7168

During this six month period the Seeking Synchronicity protocol has been downloaded more than 1,200 times.

2.f. Additional Comments(None)

3. Certification

In submitting this report, I certify that all of the information is true and correct to the best of my knowledge.

Marie L Radford

May 1, 2007

Co- Principal Investigator

Date

Attachments:

- Appendix A - Librarian Online Survey Results.
- Appendix B - Question Clarification Coding Scheme and Nodes and Descriptions
- Appendix C – Library Garden Blog Statistics

Appendix A: Librarian Online Survey Results March 2007

Number of Librarians Completing Survey: N =175

(Q 1) Respondents indicated length of time providing live chat reference, and other demographic information.

Percentage* of respondents with number of responses:

- Providing live chat reference: 175 (100%)
- Most (88%) had from 1-8 years of experience in chat reference
 - Experience in years: 1-3 years: 96 (55%)
4-8 " : 57 (33%)
Less than one: 22 (13%)
- Types of software: TBA
- Vast majority possessed MLS/MLIS degree: Yes =157 (90%); No = 18 (10%)
- 10 (6%) are students; 10 (6%) are *not* students
- 167 (95%) have taken a reference course; 8 (5%) have *not* taken a reference course
- 168 (96%) work in libraries; 7 (4) do *not* work in libraries
- 104 (59%) of respondents work in academic library settings
- 54 (31%) work in public libraries
- 7 (4%) work in special libraries
- 2 (1%) work in a library consortium
- 94 (54%) work in urban settings, while another 52 (30%) work in suburban settings; 26 (15%) work in rural settings
- 132 (75%) are women; 42 (24%) are men
- Highest percentage of respondents -- 50 (29%) -- are between 41 and 50 years of age
- 39 (22%) are aged 31-40
- 41 (23%) are aged 51-60
- **34 (19%) are aged 21-30**
- 10 (6%) are 61 years of age or older
- More than 160 (91%) are Caucasian, while 5 (nearly 3%) are African American; 2 (a little more than 1%) are Asian American ; 8 (5%) listed themselves as "Other"
- 50 (nearly 29%) possess between 0 and five years of reference experience; 46 (26%) have between six and 10 years of experience; 34 (19%) have 21 or more years of experience; 28 (16%) have 11-15 years of experience; and 17 (10%) have 16 -20 years of experience

(Q 2) Respondents were asked to compare their experiences with different modes of providing reference service: face-to-face (FtF), phone, live chat, e-mail, IM (instant messaging), and text messaging.

Respondents **consistently** rated **chat** as the **second most positively regarded mode of reference interaction**:

- 151 (more than 86%) consider FtF interactions with users to be the most positive; the runner-up was chat with 12 (nearly 7%); IM and Phone were tied at 3 (2%); text messaging was last with 1 (1%)
- FtF was still the best way, said 143 (82%) respondents, to provide access to library services; chat was again second with 14 (8%); email was favored by 11 (6%); 5 (3%) said IM was best; and 2 (1%) indicated that the phone was best for that purpose
- FtF was considered to provide the best access to library resources by 131 (nearly 75%); 24 (14%) considered chat the second-best way to achieve this result; 14 (8%) rated email best; IM was considered superior by 3(2%); phone reference received 2(1%) in this category; and text messaging was considered best by 1 (1%).
- 95 (54%) of respondents say users thank librarians most often for providing FtF reference help; **chat was again second with 45 votes (nearly 26%)**; 16 (9%) rated email as the source for most thank you's; 10 (6%) said IM provoked the most thanks; and 9 (5%) said phone reference received the most thanks from patrons

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- 126 (nearly 3/4 of respondents--72%) say that FtF provides them with the most professional satisfaction; chat provided 30 (a little more than 17%) of those responding with the most professional satisfaction; email was next with 12 (7%); phone reference provided 4 (2%) with such satisfaction; IM was last, providing 3 (2%) with same.

(Q 3): Librarians were asked to compare *specific aspects* of their experiences as a chat reference provider.

Most respondents thought highly of their ability to provide specific aspects of chat-related service; most rated themselves between good and excellent on such measures

- More than 3/4 of respondents rated their ability to conduct a reference interview in chat as good to excellent; 80 (46%) rated themselves at very good, 55 (31%) rated themselves as good, and 30 (slightly more than 17%) rated their abilities as excellent; 1 (1%) person gave her/himself a poor rating
- 85 (49%) of respondents rated their capacity to receive and respond to users' feedback as very good, 57 (33%) rated their abilities as good, while 27 (slightly more than 15%) considered themselves excellent; 3 (2%) rated themselves as fair; and 3 (2%) rated themselves as poor
- 72 (more than 42%) of those participating rated their ability to provide the best services and resources as very good, while 61 (nearly 35%) considered their abilities as good; 20 (11%) regarded themselves as fair at this task; 18 (a little more than 10%) rated themselves as excellent in this regard; 2 (1%) rated themselves as poor
- 82 (47%) considered themselves very good at communicating with users via VRS; 55 (31%) considered themselves good at it; 28 (16%) rated themselves as excellent; and 10 (6%) rated themselves as fair (none indicated they were poor at this task)
- Most respondents rated their capacity to deal with time pressure highly; 59 (34%) considered themselves very good at it; 58 (33%) thought themselves to be good at it; 28 (16%) rated themselves as excellent; 26 (15%) rated themselves as fair; 4 (2%) described themselves as poor at it
- 52 (30%) considered themselves very good at following up on queries; 46 (26%) rated themselves as good; 38 (22%) considered themselves excellent; 23 (13%) rated themselves as fair; 5 (3%) rated themselves as poor; and 11 (6%) considered follow up as N/A
- 63 (36%) rated their ability to provide users with access to databases as very good; 41 (23%) considered their abilities excellent; 38 (22%) rated that aspect good; 25 (14%) considered themselves as fair; 6 (3%) rated themselves as poor; and 2 (1%) considered that as N/A
- 69 (40%) of respondents derived a very good sense of professional satisfaction from their chat reference experiences; 45 (26%) rated chat's impact on their sense of professional satisfaction as excellent; 40 (23%) considered it as a good source of personal satisfaction; 15 (9%) considered it a fair source of satisfaction; and 6 (3%) considered it a poor source of satisfaction.

(Q 4) Librarians were asked to compare their experiences, as a chat reference provider, regarding *issues of oversight and resource allocation*.

For the most part, respondents regarded their institutional oversight and support capacities favorably

- Nearly 70% rated the availability of training as good to very good: good= 67 (38%), very good = 53 (30%); fair = 28 (16%); excellent = 21 (12%); poor = 4 (2%); N/A = 2 (1%)
- The vast majority (81%) rated the level of support from superiors in the good to excellent range; very good = 58 (32%); good and excellent ratings were close: good = 44 (25%); 42 (24%) = excellent; fair = 23 (13%); poor = 6 (3%); N/A = 4 (2%)
- About 62% rated administrative oversight of their chat work as good = 54 (31%), very good = 34 (19%), or excellent 20 = (11%); while 36 (roughly one in five -- 21%) rated that capacity as fair; poor = 10 (6%); and N/A = 21 (12%).

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- 57 (33%) regarded the level of support from their respective administrations as good, while the same number/percentage 36 (21%) rated this aspect as very good or excellent
- Few respondents rated their sense of personal accountability as less than good; 74 (42%) = very good, 55 (31%) = excellent, 38 (nearly 22%) = good; 7 (4%) = fair; 1 (1%) = poor
- Most maintained that feedback from users was very good = 66 (38%), good = 56 (32%); excellent = 28 (16%); fair = 17 (10%); poor = 3 (2%); and N/A = 5 (3%)

(Q 5) Live Chat Reference Rating along the following areas.

Most respondents rated specific service-related items as very good; exceptions are noted

- Service's ability to guide users to better resources - 83 (47%) = very good; good = 57 (33%); excellent = 24 (14%); fair = 10 (6%); poor = 1 (1%)
- Service's ability to guide users to specific databases – 65 (37%) = very good; good = 45 (26%); excellent = 34 (19%); fair = 26 (15%); poor = 4 (2%); N/A = 1 (1%)
- Service's ability to guide users to specific websites – 78 (45%) = very good, **excellent = 73 (42%)**; good = 23 (13%); fair = 1 (1%)
- Service's ability to refer users to subject specialists = **mixed** - 57 (33%) = good, **fair = 45 (26%)**; very good = 42 (24%); poor = 8 (5%); N/A = 6 (3%)
- Access to special collections - **N/A = 46 (26%)**, good = 39 (22%), very good = 34 (19%); fair = 30 (17%); poor = 19 (11%)
- Services available to additional users – very good = 54 (31%); N/A = 46 (26%); good = 44 (25%); excellent = 36 (21%); fair = 30 (17%); poor = 19 (11%)
- Oppty to educate myself about other libraries - = very good = 59 (34%); good = 33 (19%); excellent = 30 (17%); fair = 21 (12%); N/A = 19 (11%); poor = 13 (7%)
- Make personal connections w/ users - **good = 67 (38%)**; **fair = 39 (22%)**; very good = 35 (20%); excellent and poor are tied at: 13 (7%); N/A = 8 (5%)
- Follow-up on users' queries - good and very good tied at 51 (29%); fair = 30 (17%); excellent = 26 (15%); poor = 10 (6%); N/A = 7 (4%)
- **Control over reference encounter - good = 75 (43%)**; very good = 52 (30%); fair = 26 (15%); poor = 12 (7%) excellent = 10 (6%)
- Personal satisfaction - very good = 68 (39%); excellent = 56 (32%); good = 39 (22%); fair = 11 (6%); poor = 12 (7%)
- Sense of user satisfaction - very good = 67 (38%); excellent = 48 (27%); good = 47 (27%); fair = 10 (6%); N/A = 3 (2%)

(Q 6) Librarians were asked if they experienced any of the following advantages in the environment of chat reference:

Most respondents rated environment as advantageous; exceptions are noted

- Anonymity- yes = 138 (79%); no = 35 (20%); N/A = 2 (1%)
- Greater connection to user - yes = 120 (69%); no = 52 (30%); N/A = 3 (2%)
- Eliminate geographical boundaries - yes = 168 (96%); no = 7 (4%)
- Obtain email address from user = 145 (83%); no = 24 (14%); N/A = 6 (3%)
- **Personal convenience = mixed: yes = 84 (48%)**; **no = 59 (34%)**; **N/A = 32 (18%)**

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- **Less physical pressure = *mixed*: no = 87 (50%); yes = 84 (8%); N/A = 4 (2%)**
- Working in high-tech environment - yes = 127 (73%); no = 45 (26%); N/A = 3 (2%)
- More varied and interesting questions - yes = 113 (65%); no = 60 (34%); N/A = 2 (1%)
- **Ease of understanding users' reactions = *mixed*: no = 102 (58%); yes = 70 (40%); N/A = 3 (2%)**

(Q 7) Librarians were asked if they experienced any of the following advantages for their professional development as a chat reference provider:

Most respondents considered chat as contributing to their professional development; exceptions are noted

- Perform variety of services - **yes = 155 (89%); no = 19 (11%); N/A = 1 (1%)**
- Learn multitasking skills - **yes = 156 (89%); no = 17 (10%); N/A = 1 (1%)**
- Learn new technologies - **yes = 167 (95%); no = 7 (4%); N/A = 1 (1%)**
- Broaden personal knowledge base - **yes = 161 (92%); no = 13 (7%); N/A = 1 (1%)**
- Learn problem-solving techniques - **yes = 154 (88%); no = 20 (11%); N/A = 1 (1%)**
- Learn user-centered reference techniques - **yes = 155 (87%); no = 17 (10%); N/A = 3 (2%)**
- **Become more objective in reference work = *mixed*: yes = 115 (66%); no = 51 (29%); N/A = 9 (5%)**
- **Improve institution's community image - yes = 140 (80%); no = 21 (12%); N/A = 8%**

(Q 8) Librarians were asked to indicate if they have experienced any of the following challenges and difficulties while providing chat reference:

Many of the challenges outlined were not an issue for most respondents; exceptions are noted

- Burnout - no = 117 (67%, yes = 33%); yes = 58 (33%)
- **Difficulty managing time = *mixed*: no = 98 (56%); yes = 75 (43%); N/A = 2 (1%)**
- Staff resentment - no = 116 (66%); yes = 54 (31%); N/A = 5 (3%)
- Lack of adequate training - no = 126 (72%); yes = 48 (27%); N/A = 1 (1%)
- **Lack of proper marketing = *mixed*: - no = 91 (52%); yes = 81 (46%); N/A = 3 (2%)**
- Lack of computer literacy - no = 164 (94%); yes = 10 (6%); N/A = 1 (1%)
- Lack of typing proficiency - no = 157 (90%); yes = 18 (10%)
- **User affiliation problems (who can use the service) - no = 102 (58%); yes = 63 (36%); 10 (6%)**
- Lack of administration's political support - no = 131 (75%); yes = 33 (19%); N/A = 11 (6%)
- Lack of administration's financial support - no = 129 (74%); yes = 32 (18%); N/A = 14 (8%)
- **Lack of sympathetic IT support - no = 124 (71%); yes = 46 (26%); N/A = 5 (3%)**
- Jealousy from other library units - no = 148 (85%); yes = 16 (9%); N/A = 11 (6%)
- Pressure from administration - no = 135 (77%); yes = 30 (17%); N/A = 10 (6%)
- **Consortium difficulties = *mixed*: no = 82 (47%); yes = 66 (38%); N/A = 27 (15%)**
- Questions outside geographic area - no = 118 (67%); yes = 48 (27%); N/A = 9 (5%)
- **Questions outside area of subject expertise = *mixed*: no = 100 (57%); yes = 74 (42%); N/A = 1 (1%)**
- Questions in language not understood - no = 153 (87%); yes and N/A tied at 11 (6%)

(Q 9) Librarians were asked about challenges and difficulties with software they have used while providing chat reference:

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Respondents delivered a full range of answers to software challenge issues; a few specific results are noted.

- **Abrupt disconnection** - occasionally = 94 (54%); **often = 35 (20%); rarely; 29 (17%);** very often = 11(6%); never = 6 (3%)
- Pop-up blockers - rarely = 64 (37%); occ.= 48 (27%); never = 38 (22%); often = 17 (10%); very often = 8 (5%)
- Firewalls - rarely = 54 (31%); occ = 52 (30%); never = 42 (24%); often = 22 (13%); very often = 5 (3%)
- Platform incompatibility – rarely = 65 (37%); occ = 50 (29%); never = 35 (20%); often = 18 (10%); very often = 7 (4%)
- **Co-browsing difficulties - very often = 54 (31%); often = 39 (22%); occ. = 35 (20%); never = 25 (14%); rarely = 22 (13%)**
- Customizing message scripts - never = 83 (47%); rarely = 52 (30%); occ. = 28 (16%); often = 11 (6%); very often 1 (1%)
- Impersonal message scripts - rarely = 60 (34%); never = 44 (25%); occ. = 43 (25%); often = 23 (13%); very often = 5 (3%)
- Other bugs - occ. 85 (49%); rarely = 35 (20%); often 31 (18%); very often = 15 (9%); never = 9 (5%)
- Update/conversion difficulties - occ. 65 (37%); rarely = 54 (31%); never = 29 (17%); often = 23 (13%); very often = 4 (2%)
- User computer literacy - occ.94 (54%); rarely = 40 (23%); often = 25 (14%); never = 9 (5%); very often = 7 (4%)
- User impatience with software - occ. 79 (45%); rarely = 37 (21%); often = 30 (17%); very often = 19 (11%); never = 10 (6%)
- Vendors haven't tested product - rarely = 61 (35%); never = 56 (32%); occ. = 40 (23%); often = 13 (7%); very often = 5 (3%)
- **Vendors ignore desired features = mixed - occ.= 62 (35%); rarely = 42 (24%); never = 31 (18%); often = 30 (17%); very often = 10 (6%)**

(Q 10) Librarians were asked to indicate the frequency of the following challenges in user interaction in their experience, following are the responses:

- **Prank questions** - occ. 69 (39%); rarely = 51 (30%); never = 30 (17%); very often = 13 (7%); often = 12 (7%); *86% say it's not more than an occasional problem*
- **Inappropriate language** - rarely = 69 (39%); occ. = 51 (29%); never = 37 (21%); often = 11 (6%); very often = 7 (4%); *89% say it's not more than an occasional problem*
- **Inappropriate questions** - occ. 70 (40%); rarely = 64 (37%); never = 23 (13%); often and very often tied at 9 (5%) each; *90% say it's not more than an occasional problem*
- **Impatient users** - occ. 72 (41%); often = 47 (27%); rarely = 27 (15%), very often = 21 (12%); never = 8 (5%); *39% say it's very often or often a problem; 56% say it's occasionally or rarely a problem*
- **Rude users** - *equal percentages of respondents indicated that rude users are occ. and rarely a problem [63 (36%) each]; 24 (14 %) indicate that rude users are never a problem; 10 (6%) say they are very often a problem; 15 (9%) say they are often a problem*
- **Disappearing users** - occ. = 75 (43%); often = 56 (32%); very often a problem = 23 (13%); rarely = 21 (12%); never = 0

(Q 11) As a follow up question to 10 (above) the Librarians were asked to think about the challenges and difficulties in user interaction, and rate their ability to *handle* such users.

Most respondents express confidence about their ability to handle challenging user interactions; exceptions are noted

- **Prank questions** - very good = 70 (40%); good = 44 (25%); excellent = 30 (17%); N/A = 21

Co-Principal Investigators: Marie L. Radford, Ph.D. & Lynn Silipigni Connaway, Ph.D.
Seeking Synchronicity: Evaluating Virtual Reference Services from User, Non-User,
and Librarian Perspectives.

Appendix A: Librarian Online Survey Results March 2007

- (12%); fair = 9 (5%); poor = 1 (1%)
- **Inappropriate language** - very good = 73 (42%); good = 40 (23%); excellent = 32 (18%); N/A = 23 (13%); fair = 6 (3%); poor = 1 (1%)
- **Inappropriate questions** - very good = 71 (41%); good = 45 (26%); excellent = 33 (19%); fair = 14 (8%); N/A = 11 (6%); poor = 1 (1%)
- **Impatient users** - good = 67 (38%); very good = 47 (27%); excellent and fair tied at 27 (15%); poor = 2 (1%)
- **Rude users** - good = 65 (37%); very good = 55 (31%); excellent = 24 (14%); fair = 16 (9%); N/A = 13 (7%); poor = 2 (1%)
- **Disappearing users** - very good = 55 (31%); good = 40 (23%); fair = 30 (17%); excellent = 26 (15%); poor = 17 (10%); N/A = 7 (4%)

(Q 12) Librarians were asked to rate the following technological improvements in terms of how important they are to them as a chat reference provider:

- **Faster software** - 86% say this is important or very important; very imp. = 86 (49%); imp. = 65 (37%); somewhat imp. = 14 (8%); not very imp. = 6 (3%); not imp. = 3 (2%); N/A = 1 (1%)
- **Co-browsing reliability** - 72% say this is important; 86 (49%) say this is very important; 39 (22%) say it's important; 21 (12%) = somewhat imp.; 13 (7%) = not very imp.; N/A = 10 (6%); not imp. = 6 (3%)
- **Ability to customize software** = mixed: 53 (30%) = somewhat important; 47 (27%) = very important; 43 (25%) = important; 28 (16%) = not very imp.; 3 (2%) = not imp.; 1 (1%) = N/A
- **Ability to customize outgoing message scripts** = mixed: somewhat important = 53 (30%); important = 46 (26%); very important = 38 (22%); not very imp. = 26 (15 %); not imp. = 7 (4%); N/A = 5 (3%)
- **Less complex software interface** - 60% say this is important or very important; important = 64 (37%); very important = 41 (23%); somewhat imp. = 36 (21%); not very imp. = 23 (13%); N/A = 6 (3%); not imp. = 5 (3%)
- **Compatibility with all browsers** - 89% say this is important or very important; very important = 106 (61%); important = 49 (28%); somewhat imp. = 10 (6%); not very imp. = 4 (2%); N/A and not important tied at 3 (2%)
- Streaming audio- 23% say this is important to very important; not very imp. = 59 (34%); somewhat imp. = 45 (26%); not imp. = 26 (15%); important = 22 (13%); very imp. = 19 (11%); N/A = 4 (2%)
- Voice-over protocols; 27% say this is important to very important; somewhat imp. = 48 (27%); not very imp. = 47 (27%); very imp. = 26 (15%); not imp. = 23 (13%); important = 22 (13%); N/A = 9 (5%)
- Translation packages; 12% say this is important to very important; somewhat imp. = 63 (36%); not very imp. = 56 (32%); not imp. = 25 (14%); important = 13 (7%); N/A = 10 (6%); very imp. = 8 (5%)
- **Web-based vs. plug-in** - 60% say this is important to very important; very imp. = 65 (37%); important = 40 (23%); somewhat imp. = 32 (18%); not very imp. = 21 (12%); N/A = 11 (6%); not imp. = 6 (3%)
- **User input in one screen location**: 59% say this is important to very important; important = 52 (30%); very imp. = 50 (29%); somewhat imp. = 42 (24%); not very imp. = 16 (9%); N/A = 11 (6%); not imp. = 4 (2%)
- Route questions to subject queues: 50% say this is important to very important; important = 55 (31%); somewhat imp. = 36 (21%); very imp. = 33 (19%); not very imp. = 30 (17%); not imp. = 11 (6%); N/A = 10 (6%)
- Route questions through language queues; 42% say this is important to very important; somewhat imp. = 42 (24%); not very imp. = 41 (23%); important = 34 (19%); very imp. = 21 (12%); N/A = 19 (11%); not imp. = 18 (10%)

Appendix B: Query Clarification Coding Scheme, Nodes and Definitions

Categories and Nodes:

Juicy Quotes	
(Clarifier)*	
User	
Librarian	
(Clarification)	
Yes	
Scripted	
No	
No Clarification Necessary	
(Type of question)	
Open Question	
Closed Question	
(Query type)	
Self-Generated Query	
Imposed Query	
School assignment	
Work related	
Unknown	
(Stage of interaction)	
Before Searching	
During Searching	
After Searching	
(Information Sought)	
Search History	Topic
Background	
Extent/depth	
Type of Resource	
Verification	
Correction	
Follow-up Question	
Referral Question	

*Words in parentheses are not NVivo Nodes

** All quotes are verbatim from transcripts and errors in spelling and content are not corrected.

2/15/07

Appendix B: Query Clarification Coding Scheme, Nodes and Definitions

Query Clarification

Node Descriptions & Transcript Examples

Nodes	Description	Examples
Juicy Quotes	Prime examples of any particular code below. Also includes examples of rare or unique occurrences in transcripts.	N/A
(Clarifier)		
User		N/A
Librarian		N/A
(Clarification)		
Yes	Occurrence of clarification	N/A
Scripted	An occurrence of clarification by means of a script	[Is this for a school assignment? If so, what grade level so I don't give you something that is too difficult or too easy.]
No	Absence of clarification	N/A
No Clarification Necessary	In light of content/detail of user's question, no clarification is necessary on the librarian's part. "We all know that some questions need no negotiations -- such as when the physical library is open, does the library provide a given service, or how to access databases when off campus. We know these questions do not need to be negotiated; because once the customer has the answer, they are gone. They hang up the phone or sign off of a chat service, sometimes without even saying thank you, thanks, or tks" (Kaske, 2004, p. 295).	U: "I cannot find the Writ of Execution form online with the other forms. Please direct me."** L: "That's form no. EJ-130. Here's the link:"
(Type of question)		
Open Question	"Questions are open when the response is left up to the respondent; when they <i>cannot</i> be answered 'yes' or 'no'" (King, 1972, p. 158). "Open questions... allow users to respond in their own words and do not limit answers to the narrow range of choices presented by the closed question: open questions are invitations to talk" (Dervin & Dewdney, 1986, p. 508).	L: "How are you hoping to use this information?"

Appendix B: Query Clarification Coding Scheme, Nodes and Definitions

<p>Closed Question</p>	<p>“Questions are closed when the respondent does not have a choice in his response other than those provided by the questioner” (King, 1972, p. 158).</p> <p>“Closed questions... limit the expected range of response to a ‘yes’/‘no,’ ‘this’/‘that’ answer... a closed question always restricts the freedom of the user’s response” (Dervin & Dewdney, 1986, p. 508).</p>	<p>L: “Do you want the Trenton or Washington representatives?”</p>
<p>(Query Type)</p>		
<p>Self-Generated Query</p>	<p>User identifies an information need and asks a question</p> <p>[there is a] “need to differentiate between information seeking that is self-generated (users transacting questions they have determined for themselves) and imposed information seeking in which agent users seek information on behalf of someone else.” (Gross & Saxton, 2002, p. 252).</p> <p>“Self-generated questions arise from the context of a person’s life and are pursued by the person who is asking the questions. Imposed questions occur when the person who constructs the question asks someone else to transact it.” (Gross, 2005, p. 164).</p> <p>User identifies an information need and asks a question (“Each of these theories of the self-generated question has been useful in refining the ways in which we view and conduct the reference interview...” (Gross, 1995, p. 237).</p> <p>“information seeking may be either self-generated (internally motivated by personal context) or imposed (set in motion by someone else).” (Gross, 1999, p. 501).</p>	<p>U: “I want to plan a camping and rock climbing trip to Pilot Mountain. Do you have any recommendations?”</p>

Appendix B: Query Clarification Coding Scheme, Nodes and Definitions

Imposed Query	<p>“a question that is given to someone else to transact or resolve”</p> <p>“the <i>agent</i>, the person pursuing the question, has been put on this course by someone else (the <i>imposer</i>), and that the search is completed not when the agent finds the information but rather when the agent communicates it to the imposer” (Gross, 1995, p. 237).</p> <p>“Imposed queries emanate from both formal and informal relationships between people. For instance, students routinely use library services to answer questions posed by teachers, and likewise, there are various positions—research assistant, law clerk, administrative assistant, and so forth—that involve finding information for a supervisor or employer” (Gross, 1999, p. 501).</p>	
School Assignment	<p>Clarifies the school-related project requirements</p> <p>“How is the information going to be used?” (Katz, 2002, p. 133).</p> <p>“Why does the enquirer want this information?” (Taylor, 1968, p. 129).</p>	<p>U: “For a history project, I must do a poster diagram of the evolution of pyramids from masatbas to step pyramids to straight-sided pyramids. Please find me websites and books (at least 1 book) with information on these different types of pyramids.”</p>
Work Related	<p>Clarifies work-related project requirements</p>	<p>U: “I work for a Poli-Sci professor and she needs some information from "The Working Press of the Nation" (magazines and internal publications directory). We don't have a copy of this on campus, and I haven't been able to reach the Reference desks of the 3 area libraries that have the book. Can you help?”</p>
Unknown	<p>Unable to determine origin of query</p>	<p>U: “who is the state rep for nj”</p>
(Stage of interaction)		
Before Searching	<p>Clarifies before beginning of search or at the beginning of interaction during or immediately following greeting ritual</p>	<p>N/A</p>

Appendix B: Query Clarification Coding Scheme, Nodes and Definitions

During Searching	Clarifies after searching has commenced or in the middle of interaction	N/A
After Searching	Clarifies immediately before or even after closing ritual	N/A
(Information Sought)		
Topic	Seeking or offering additional info on topic “...the primary purpose of negotiated subject definition is to provide some general delineation of the area... continued dialogue on the ramifications and structure of the subject will define, expand, narrow, and qualify the enquiry” (Taylor, 1968, 128).	L: “Where did you hear this term, in class?” L: “Do you mean what natural resources?” L: “What kind of advertisements are you thinking about or considering?” L: “I’m not finding that title. Do you know anything about it?”
Search History	Clarifies sources and strategies already used “How much information does the user already have about the topic?” (Katz, 2002, p. 133).	L: “Have you tried the last four digits of your phone number” L: “Where have you looked for an answer to your question so far?”
Background	Clarifies personal background characteristics of user. This question “in the negotiation process has to do with the personal background of the inquirer... Answers to these types of question have relevance to the total negotiation process... in short, it is the context, the environment for the negotiation process” (Taylor, 1968, p. 129).	L: “Are you at uni?” “...what year are you in?” L: “Is this for a school project?” L: “...can you tell me more about your project...” L: “Can you tell me a bit more about your assignment?”
Extent/Depth	Clarifies extent/depth/amount of information sought “What degree of sophistication is required?” “How much is needed?” (Katz, 2002, p. 133).	U: “the thing is i need it to be simple and not to wordy so its easy to find the information that i need”
Type of Resource	Clarifies type of materials or formats for desired resources “What kind of information is needed?” (Katz, 2002, p. 133).	L: “Are you looking for books, articles, or online information?” L: “What sort of materials or formats are you interested in?” L: “Are you trying to find titles of e-journals, by keyword? Or, rather, are you trying to find individual articles?”

Appendix B: Query Clarification Coding Scheme, Nodes and Definitions

<p>Verification</p>	<p>Clarification by confirming/paraphrasing/summarizing “In any interview, no matter how short, it is wise to summarize the question of the facets of the question. The client may then correct or modify the librarian’s response” (Katz, 2002, p. 131). “echos” query (statement to confirm by paraphrasing/summarizing) “Other times, the librarian would echo the patron’s request in question (or question-like) form, either using the same words or paraphrasing what the patron had asked.” (Ford, 2003, p. 250).</p>	<p>L: “You want a web site on Brown vs Bd of Educ?” L: “So there was some kind of vote in your county back in 2000? Is that correct?” L: “OK so it sounds like you want to protest the election results.”</p>
<p>Correction</p>	<p>One corrects the other’s misunderstanding “...many of the questions asked – by librarians and patrons alike – moved interactions along by confirming understanding, and repairing misunderstandings.” (Ford, 2003, p. 249).</p>	<p>U: “i know you can access it as a student for free” L: “Yes, you can get into westlaw for free, but from what i can tell this is only access to legal information and laws, not individual criminal records”</p> <hr/> <p>L: “Do you eam the John Stevens who was the cheif engineer of the Panama Canal?” U: “No John Stevens III, He was the father of American Railroads”</p> <hr/> <p>L: “There is a book called Heroes of the Holocaust by Arnold Geier.” U: “no herous of the holocaust by allan zullo and mara bovsun”</p>
<p>Follow-up Question</p>	<p>Confirming user has received the correct information and the right amount “The follow-up question can help fix some of the problems which may occur during a reference interview (such as miscommunication, not understanding the question, faulty assumptions, etc.)...” (Durrance, 1995, p. 254). “This may be the single most important behavior because it has the potential for allowing one to remedy lapses in other desirable behaviors” (Gers & Seward, 1985, p. 34).</p>	<p>L: “Does it give you the info. you need?” L: “Does this answer your question?” L: “Do you think you can use what I've given you here?” L: “Does this completely answer your question?”</p>

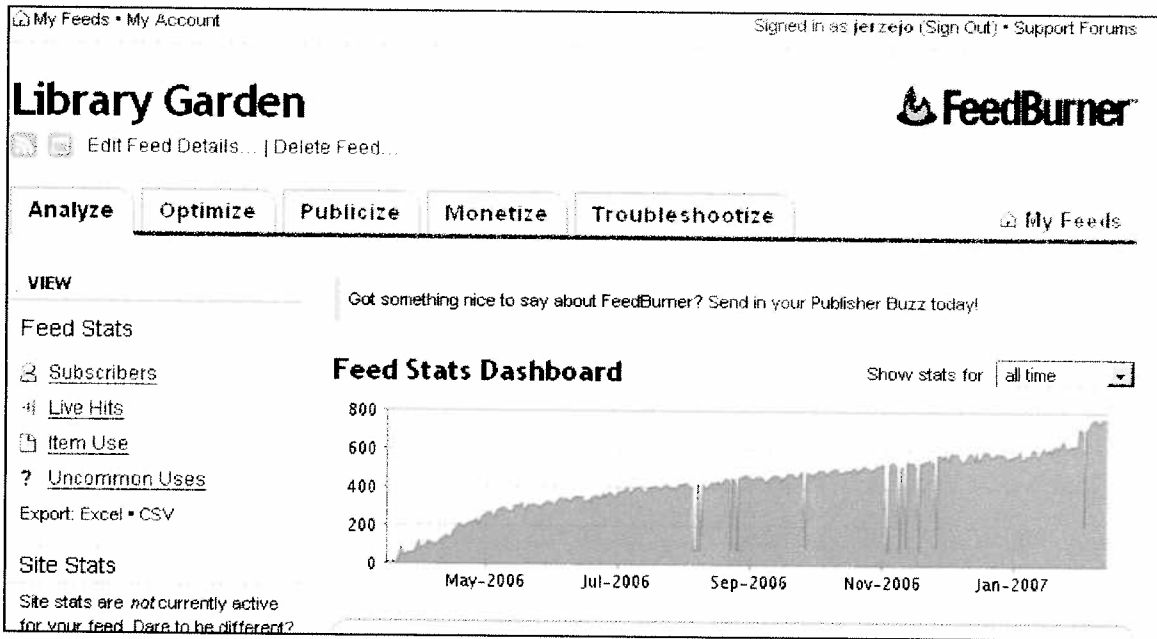
Appendix B: Query Clarification Coding Scheme, Nodes and Definitions

Referral Question	Librarian asks if user would like to be referred to another librarian for follow-up to the query	L: "I'm not having much luck, a business librarian might know of a source I am missing, Can I have one contact you back via email?" L: "Would you like me to forward it for followup by email?" L: "There is a library in NJ that specializes in business questions. Would you like me to forward your question to them?"
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Appendix C: Library Garden Rocks!!



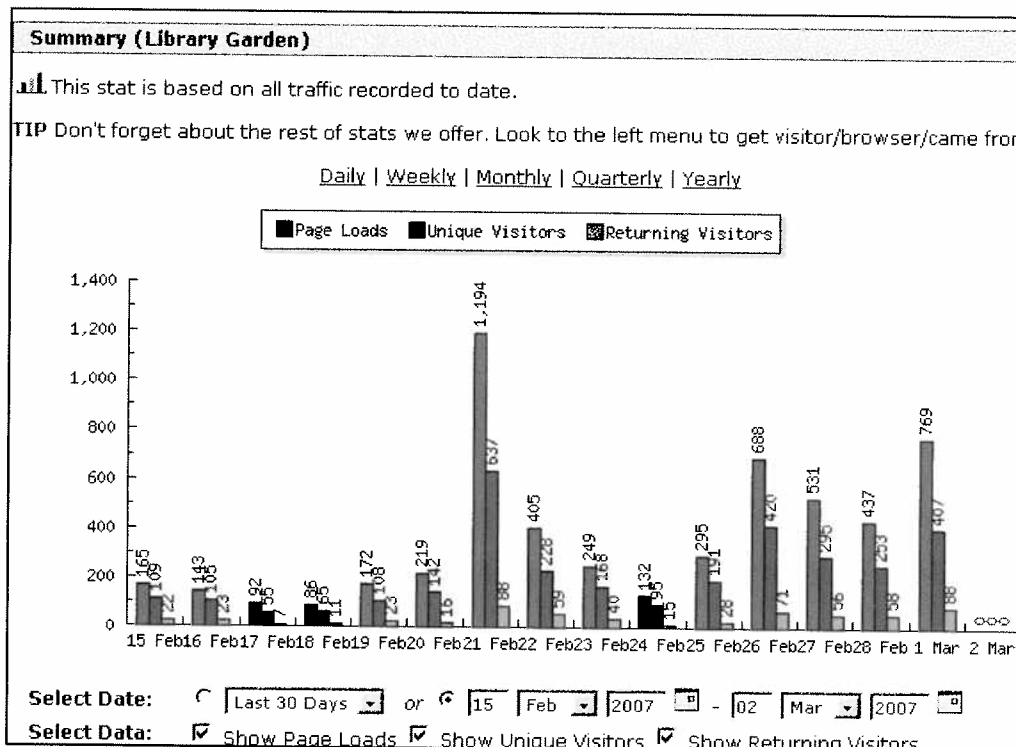
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