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Expect the Unexpected: Urban Screenagers' Communication and Information-seeking Preferences

Notes: This research has been funded by the Institute of Museum and Library Services, Rutgers, the State University of New Jersey, and OCLC Online Computer Library Center, Inc. The project Web site is http://www.oclc.org/research/projects/synchronicity.

The authors would like to thank Jocelyn DeAngelis Williams, Julie Strange, Patrick Confer, Mary Anne Reilly, Timothy Dickey, Stephanie Kip, and Vickie Kozo for their help in data collection and analysis. In addition, the authors owe a debt of gratitude to the librarians and teachers who assisted in arranging the focus groups and to all the participants of the focus groups, and to the anonymous VRS librarians and VRS users whose transcripts were analyzed.

A suggested citation appears below; an abstract appears on page 2.

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Suggested citation:
Radford, Marie L. and Lynn Silipigni Connaway. c2007. "Expect the Unexpected: Urban Screenagers' Communication and Information-seeking Preferences." Paper presented at the National Communication Association preconvention seminar, "Urban Communication: Creating Sites for Connection and Action," organized by Gary Gumpert & Susan Drucker, 15 November 2006, San Antonio, Texas (USA). Available online at: http://www.oclc.org/research/projects/synchronicity/resources/nca2006-screenagers.pdf.

Expect the Unexpected: Urban Screenagers' Communication and Information-seeking Preferences[1]

By
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To be presented at the National Communication Association, San Antonio, Texas November 15, 2006, 8:00am-5:00pm, Gonzales Convention Center, Room 102B, Preconvention Seminar, "Urban Communication: Creating Sites for Connection and Action," organized by Gary Gumpert & Susan Drucker.

Abstract: Urban public libraries have emerged as one of the few safe places that young people can gather after school and on weekends to do homework, socialize, and obtain free access to the Internet. Today's 12-18 year old members of the Millennial Generation have been referred to as "screenagers" because of their affinity for electronic communication via computer, phone, television, etc. screens (see Rushkoff, 1996). These young Millennials are at home in the instant messaging and chat environment. It is well known that their communication and information-seeking behaviors are distinctly different from those of other age cohorts and radically different from those of the baby boomer generation. Libraries are providing Web-based virtual reference services (VRS) as alternatives to traditional face-to-face (FtF) reference services to meet the information needs of virtual as well as FtF library users. This paper presents the revealing results of an international study of communication and information-seeking including a series of three focus group interviews with 12-18 year olds and analysis of a random sample of 431 live chat reference transcripts drawn from an international population. Analysis of these focus group interviews with ethnically diverse groups of urban, suburban, and rural screenagers compares and contrasts their communication and information-seeking preferences. Unexpectedly, these groups have revealed that they use IM for socializing and collaborative homework, yet perceive library VRS differently then these other virtual encounters; they also express a preference for FtF encounters with librarians.

Introduction

Much scholarly as well as popular literature has been written about the Millennial Generation, those born from 1979 through 1994 (Sweeney, 2006) or 1980-2000 (Hallam & Partridge, 2006), who have also been called Next Gen, Net Generation, Generation Y, C Generation, Nexters, Nintendo Generation, Digital Generation, or Echo Boomers (Sweeney, 2006; Oblinger & Oblinger, 2005, 2006; Hallam & Partridge, 2006). This generation is second in size to the Baby Boomers (born 1946-1964) and will eventually outnumber the Baby Boomers, perhaps as early as 2010 (Sweeney, 2006, p. 2). Researchers studying the Millennials have found "behaviors and characteristics that distinguish them in degree or kind from previous generations *at the same age"* (emphasis in original, p. 1). Their communication and information-seeking behaviors are distinctly different from those of older age cohorts and radically different from the baby boomer generation. Sweeney (2006) has identified preferences of the Millennials that include: more choices, more selectivity; flexibility/convenience; personalization and customization (pp. 2-5). He has also identified common characteristics of this group that include: experiential and exploratory learning style; impatience; practical, results oriented thinking; multi-tasking; and nomadic communication style (pp. 2-5).

The 12-18 year old members of this Millennial Generation have been referred to as "screenagers" because of their affinity for electronic communication via computer, phone, television, etc. screens (see Rushkoff, 1996). Agosto and Hughes-Hassell (2005) found that urban youth used a variety of media sources: "when these teenagers have

information needs, they turn to telephones, televisions, computers, and radios before turning to print resources such as newspapers, books, and magazines. In fact, books and magazines, still staples of many public and school libraries, were listed at the bottom of their list of resources" (p. 161). These youngest Millennials are very much at home in the instant messaging and chat environment to a degree unmatched by preceding generations and exhibit the Millennial characteristics to a greater degree than the older group (19-27 year old).

In response to user demand and growing technological trends, libraries have been providing Web-based virtual reference services (VRS) as alternatives to traditional face-to-face (FtF) reference services to meet the information needs of virtual as well as FtF library users. Yet Braun (2002) has commented that libraries have been slow to adopt instant messaging and online chat which are media that the "screenagers" generally find more appealing than e-mail. Since 1993, Web has enabled libraries to provide access to a broad range of electronic information to all user groups. Technology advances and user-driven demands have prompted not only the development of library Web pages, but the emergence of digital reference assistance for remote users. These digital alternatives to traditional face-to-face (FtF) reference encounters comprise a range of what have come to be known as virtual reference services (VRS), including asynchronous services such as e-mail, and synchronous services such as instant messaging (IM) and online chat. Information seekers, including those from the Millennial Generation, are increasingly turning to VRS for the anonymity and convenience of remote access (Tenopir, 2004), and extended hours of operation (Ruppel & Fagan, 2002).

Literature Review

Library and Information Science Literature on Virtual Reference

VRS have opened up a new venue for librarians to communicate with library users. Their proliferation underscores the need to understand the behavior of service users and providers and to examine issues related to participant satisfaction and promoting successful interactions. Thus far VRS evaluation is in its early stages. Interpersonal, relational aspects have been shown to be critical to clients' perceptions of successful FtF reference interactions (Radford, 1993, 1999; Dewdney & Ross, 1994) and recently in virtual environments (Radford, 2006a; Walter & Mediavilla, 2005). Additional research is needed to explore how these services are meeting the needs of specific populations, including the young Millennials from urban, suburban, and rural environments.

Live chat reference encounters provide a rich, evolving context for study. Chat virtual reference users cannot, like those engaging in FtF encounters, seek out familiar librarians with whom they have established an ongoing relationship (Radford, 1998). For while chat reference makes it possible for users to visit the same service repeatedly, there is little chance that users will interact (or will be able to perceive that they are interacting) with the same librarian they encountered previously.

VR encounters do, however, provide a unique opportunity to study the reference interaction word-for-word because such encounters produce an artifact, a complete transcript of the live chat session, that captures the text conversation and, in some systems, time stamps every reply. The existence of these transcripts allows researchers to conduct content analyses of the dialog that may be deemed too difficult and/or obtrusive to attempt during FtF encounters.

Much of the burgeoning body of research on VRS involves evaluations of task-related dimensions such as the degree to which questions posed to librarians are efficiently and effectively answered (see Arnold & Kaske, 2005, Foley, 2002; Gross & McClure, 2001; Kaske & Arnold, 2002; and White, Abels, & Kaske, 2003). VRS service providers are just beginning to track and analyze user and librarian behavior in chat environments (Sloan, 2004). There is also a growing group of researchers who are turning their attention to the interpersonal aspects of VRS (see Carter & Janes, 2002; Janes & Mon, 2004; Mon, 2006; Nilsen, 2004; Radford, 2003, 2006a, 2006b, 2006c; Ruppel & Fagan, 2002; and Walter & Mediavilla, 2005).

Literature Review – Millennial Generation and Libraries

The Millennial Generation has a unique approach to communication and information-seeking which influences their perception and use of libraries. They have "grown up with computers and video games, the students have become accustomed to multimedia environments: figuring things out for themselves without consulting manuals; working in groups; and multitasking" (Lippincott, 2005, p.13.2). Sweeney (2006) believes that: "While some in the older generations may adapt quickly, they will always be immigrants and will never be as competent, resourceful, or 'natural' as the Millennial 'natives' born into this new culture" (p. 1). Older generations tend to only go to the web when they have a given task to complete but Millennials are comfortably both on and offline and see "the world wide web as their information universe" (Lippincott, 2005, p. 13.3). Members of this generation also are more independent than older cohorts and like to find information on their own. "Students usually prefer the global searching of Google to more sophisticated but more time-consuming searching provided by the library" (p.

13.3, see also Schacter, Chung, & Dorr, 1998). "Students have grown up in and will live in a society rich in technology and digital information" and "want not just speedy answers, but full gratification of their information requests on the spot" (p. 13.13). They want easy access to full-text documents and get impatient with complex searching that may yield only citations or abstracts, not complete articles.

Millennials make limited use of libraries and librarians as information sources, generally seeing libraries and librarians in negative terms. Radford (2006c) found that librarians who reprimand adolescents for their chat behaviors (such as flaming through use of all capital letters) can provoke or exacerbate rude behavior, and provided recommendations for turning negative chat interactions with young adults into positive experiences. Research with urban teens aged 14-17 years has found that: "participants conveyed negative attitudes toward libraries and librarians and reported frustration with…aspects of library service such as strict rules, unpleasant staff, lack of culturally relevant materials, dreary physical spaces, and limited access to technology" (Agosto & Hughes-Hassell, 2005, p. 161).

Janes (2002) and Walther and Mediavilla (2005) believe that virtual reference services will appeal to the young Millennials who are frequent users of IM and social networking web sites such as MySpace.com® (Hempel, 2005). Despite the observation that Millennials consider the online world as just another seamless part of their "real" life, most "were not competent participants in the text-oriented discourse environment created by reference librarians. When teens go online with their friends, spelling is less important than rapid response, and capital letters and punctuation are nonexistent. The aim is to connect. Content is almost irrelevant. Indeed when teens go online with their

friends, the medium is the message" (Walter & Mediavilla, 2005, p. 12, see also Fagan & Desai, 2003, and Janes, 2002, who had similar findings). Walther and Mediavilla (2005) believe that: "Unfortunately, the librarians we studied seem to have grafted inferior versions of the communication styles and protocols of face-to-face reference onto some rather clunky software" (p. 14). They conclude that virtual reference has not yet lived up to its promise for young people.

Computer-Mediated Communication (CMC) Literature

There are a growing number of researchers in the Computer-Mediated Communication (CMC) field who are studying the relational aspects of virtual communication in a variety of synchronous and asynchronous environments. Seminal work by Rice and Love (1987) focused attention on the relational dimensions in CMC which they refer to as "socioemotional" content, defined as "interactions that show solidarity, tension relief, agreement, antagonism, tension, and disagreement" (p. 93) as compared to "task-" focused "interactions that ask for or give information or opinion" (p. 93). Their finding that 30% of sentences in CMC messages were of socioemotional content disputed the contemporary assumption that CMC was less rich than FtF encounters. Researchers such as Carter (2003), Rezabek and Cochenour (1998), and Walther (1992, 1994) have found that people who communicate via CMC increasingly adapt their text (by using emoticons, abbreviations, punctuation, all capital letters, all lower case, etc.) to compensate for the lack of nonverbal cues. Walther and D'Addario (2001) assert that CMC users will develop social relationships regardless of the purpose of the interaction.

Email and chat use has continued to grow, especially with young adolescents who increasingly use Instant Messaging (IM) or text messaging for social communication on a daily basis (Metz, Clyman, & Todd, 2003). Indeed, "the younger generation, which has grown up text messaging one another so quickly, in the most fantastic way" may choose text above other types of communication, including phone calls or FtF communication because they feel that IM allows them to "really be authentic" since it provides the "emotional security" of both physical distance and time to compose (or avoid) an answer (Zlinko, 2006, n. p.). The young Millennials may feel that there is more control in texting or chat situations "It's easier to say what you really want to say online because you don't get cut off or interrupted" (Zlinko, 2006, n.p.).

The impact of IM and text messaging use on library VRS dialogue is clearly evident in the literature reviewed above and is expected to grow as increasing numbers of the large millennial generation reach college age and adulthood.

Theoretical Perspective and Research Questions

The theoretical framework of Watzlawick, Beavin and Jackson (1967) informs the research presented in this paper. In their seminal work *Pragmatics of Human Communiction*, Watzlawick et al. (1967) proposed the axiom that all messages have two dimensions, differentiating between the content (information) aspects and the relational (affect, interpersonal) aspects of human communication. The relational approach of Watzlawick et al. (1967) has been heuristically rich, forming the basis of numerous empirical studies. The research reported in this paper builds on the work of Watzlawick et al. (1967), as applied by Radford (1993, 1999) to FtF reference encounters, and Radford (2006a, 2006c) to live chat reference interactions. This study addresses research

questions derived from the gaps uncovered in the above review of the literature and application of the Watzlawick et al. (1967) theoretical perspective. They are as follows:

- What are the communication and information-seeking preference of teenagers?
- Are there differences in communication and information-seeking preferences among urban, suburban and rural teenagers?
- What relational dimensions are present in chat reference transcripts?
- Are there differences in the relational dimensions/patterns of teen-aged VRS users, other users and librarians? If so, what are they?
- What is the relationship between content and relational dimensions in determining the quality of chat reference encounters?
- What are the critical factors that influence the decision to select and use virtual reference services? Why do non-users opt to use other means?
- How do VRS users and librarians compensate for lack of nonverbal cues in chat reference?
- How does VRS users' satisfaction with face-to-face reference encounters compare to satisfaction with reference encounters in virtual environments (including chat and email)?

Method

To address these research questions, data was collected from a series of three focus groups as well as from a review of a random sample of 431VRS transcripts from an international service provider. Procedures for data collection, selection of participants, data analysis, as well as a report of results are given below.

Focus Group Interviews – Data Collection and Analysis

In an initial phase of the grant, a series of eight focus group interviews were conducted with librarians, users, and non-users of VRS. Three of these focus group interviews were composed of with young Millennials or "screenagers," in three different Northeastern states, one from a rural environment, one from a suburban neighborhood, and one from an urban area. These teenagers had not used VRS services. An additional focus group interview is planned in the near future with screenager users of VRS.

The focus group interview participants were recruited with the help of two librarians at public libraries and one public school librarian. Two (rural and urban) focus group interviews were held at public libraries, one (suburban) at a public high school. The suburban high school participants were members of a history class, recruited through librarian–teacher cooperation. The urban public library participants were recruited by the young adult librarian from a group of teenagers who are regular library users. The rural public library group was recruited by the public librarian and was a combination of regular public library users and teens who were regular users of their school libraries.

For the three focus group interviews with teenaged non-users of VRS there were a total of 33 participants. 18 (55%)[4] of the participants were female and 15 (45%) were male. Ethnicities of the participants were as follows: 21 (64%) Caucasian, 6 (18%) African American, and 6 (18%) Hispanic. Thirty-one (94%) of the focus group interview members were in high school and 2 (6%) were in junior high school, with ages ranging from 12 to18 years old. All participants signed informed consent forms and parental signatures were also obtained for those participants who were under the age of 18.

The focus group interview transcripts were audio tape recorded and transcribed verbatim and all participant's names were removed to ensure confidentiality. Focus group interview transcripts were qualitatively analyzed and common themes were identified for each of the questions (see Appendix A for focus group interview questions). Close attention was paid to the similarities and differences among group responses.

Focus Group Interviews – Results and Discussion

Preference for Independent Information-seeking

There were a number of common themes that emerged across all the teen groups. As found by other researchers, these screenagers prefer to use Google or other search engines, browse the web, or ask their friends for help, while some prefer to find information on their own rather than ask a librarian for help (see also Agosto & Hughes-Hassell, 2005, 2006). There was consensus in the urban and rural groups that they trusted the results they got on Google above those they got from librarians (see also Schacter, Chung, & Dorr, 1998 who had a similar finding with middle school children). A rural teen voiced the majority opinion for that group: "I wouldn't really trust my librarian. I trust Google." Another rural teen said: "I find something on Google and there's enough information on it and it seems logical, I'll just go with it." Another agreed that usually Google results are used without verification, but noted that she would check sources for a research paper: "Especially if it's something like you're doing a paper in class and you already know the subject pretty well and all you're looking for are sources to validate what you, you're putting like your argument on paper. You validate your argument. I really don't double check it. I'm like well 'this is what I'm trying to say. This is the source I'm going to use.' But if it's like a research paper, I'll double check my sources a couple of times just to make sure it's the right information."

Google was seen as very convenient and easy to use when compared to the more difficult searching interface of library subscription-based, highly authoritative databases. The suburban teens were the only ones who trusted results from journal article or subject databases (such as SIRS or Galenet) above Google or web surfing. They said that they

had been taught to use these quality resources in English class and they have easy access to them through the school library's website. They did agree, however, that Google was easier and that they would use Google to gather background information when beginning a research project. The suburban group had also been taught to evaluate content of web pages found through Google. One urban student also said he/she was careful in judging web page content: "What I've seen lately is that you can have a page that's perfectly structured and everything, but yet it can be inaccurate with, um, information… Some pages like that are biased like towards one thing. So you have to make sure you look at everything on the page." Across all three groups, many of the teens trust their ability to evaluate web-based resources above that of the librarian, although others understand that librarians know where to find the best information. Other researchers have noted that adolescents have an "apparent lack of concern for their ability to discern the quality of their sources…students spend little time evaluating what they have on the screen, apparently not able to distinguish wheat from chaff" (Valenza, 2006, p. 19). In addition Valenza (2006) also notes "People, teens included, stop their searching at *good enough*" and frequently choose to "satisfice," following "a path of minimum effort" (p. 20, emphasis in original).

Preference for Face-to-Face Interaction

When they did choose to go to the librarian for help, unexpectedly, the majority prefer face-to-face (FtF) interactions with the librarian to any other form of communication with a librarian. Both the urban and suburban group had established strong interpersonal relationships with their public (urban) and school (suburban) librarians. They highly value the interpersonal interaction they have with these librarians.

One suburban teen noted: "Yeah. I think it's easier to have her right there because you can get her feedback on the articles. Like she'll pull up a few and then she'll tell you like what she thinks; it's scholarly or like what she thinks. Then if you're 'This isn't right for me,' she can help you find what you actually need." Another suburban teen agreed: "As long as you're having conversation with someone else at least you can build a relationship. That's just something that you can't get through a computer typing in stuff."

Teens in both the rural and urban groups reported that they were more likely to ask their public librarians for reader's advisory help in locating good books to read than for homework or school related information. Most of the urban teens were avid readers, one stating that they choose to read books because they are frequently "bored."

Interestingly, although the majority of the teens across all three groups carried cell phones, a large majority had never used their phones to call a librarian for homework help. Most teens were unaware that the public library had a phone reference service and one urban female was unaware that the library had a web page. There was also consensus across the groups that none would ever email a librarian.

Librarian Stereotypes

Although they valued the interpersonal relationships they have cultivated with their young adult librarians, the urban and rural groups reflected negative stereotypes of librarians in general. This longer excerpt from the urban focus group interview reveals that the regular reference librarians were not seen as helpful to the teens.

> Lisa:[5] Yeah, like if they're not helpful, they'll point me in the direction and say "Oh…(talk-over)
>
> Interviewer: Have other people had that kind of experience with librarians?

> Joe: Yeah. Sometimes, sometimes I've asked them like where's a certain book and they'll be like, they'll just point at a random shelf… And then, and then I look and there's like three shelves next to each other and I'm like "Which one is it?" So, it's like you have to go and look at every book to see if the book is there.
>
> Sarah: And you get embarrassed; you don't want to ask them again once you've already asked them…(talk-over)
>
> Joe: …It's like they close their eyes and they're like that "That one right there." (laughs)
>
> Multiple Participants: (laughter)
>
> Sarah: And then cause you've already asked them, you don't want to feel like you're pestering them too much so you don't go and ask them again. It's like, it's like, you don't want to go "So which shelf are you pointing at?" Because, I mean, once they do their famous point, it's just like… (laughs)
>
> Multiple Participants: (laughter)
>
> Sarah:…you don't want to go near them again. That's it. So, you'd rather try your luck in searching it out yourself or going on the computer.
>
> Ed: I have actually, uh, left the library and came back another day for the book. Because they would do the the point and then,…(talk-over).

It is especially poignant to read how Ed has "actually, uh, left the library and came back another day for the book" rather than interact with the librarian a second time to clarify the directions originally provided him. Sarah, above, refers to "their famous point" evoking one of the standard components of the librarian stereotype (see Radford & Radford, 1997). Clearly, the teens choose to avoid possible embarrassing situations and see interactions such as these as face threatening in Goffman's (1967) terms.

A rural teen expressed a similar concern about approaching a school librarian for follow-up questions after the traditional library orientation session: "they spend like the first forty-five minutes of that first day explaining everything that you've heard for like four years and you know how to do it and you're just like 'Can I go and do this? I know

what I'm doing.' And I'm like, if you go ahead they'll yell at you and it's just like, uh, it drives you crazy." An urban teen revealed their stereotypical view that the librarians: "go and use books and just do more traditional librarian kind of thing." The association of librarians with books is also evident above when one teen noted that she goes to the librarian mostly for reader's advisory (connected to books), not for other information needs. One rural teen described his/her school librarian as stereotypically mean and the school library atmosphere as unwelcoming: "Aaaah, if it's necessary, I'll go. But if not, I'd rather stay away from it."

Reasons for Not Using VRS

There were several reasons why the participants of all three focus group interviews had not yet tried VRS chat reference services although nearly all of the participants were avid IM users. One difference to note is that the majority of urban students were using email rather than IM (see Agosto& Hughes-Hassell, 2005 who also found a delay in urban teen's adoption of current technology such as IM). Most participants saw IM as a venue for socializing but not for serious pursuits like getting homework help. One major reason the teens did not use VRS was that they were not aware that these services existed; although two of the three locations had nationally acclaimed 24/7 statewide chat services offered free to state residents. Some feared that the chat librarians would not understand their information needs, would ignore them, or would not care about them as individuals because of the anonymity of chat. One rural participant said: "Plus I think the IMing kind of gives it a cold feeling to it like, you know. They really don't care. They're just doing their job. When you can actually sit and talk to someone face-to-face you kind of can see if they care or not, you know. If they

don't care, you're like 'Well, you're not going to help me very much anyway' and you can move on. But the IM, you can keep trying to ask the same person the same question like over and over. And if they don't care, they're just going to keep ignoring you."

In addition, the participants did not seem to have much confidence in the multi-tasking or technical abilities of the librarians for managing a chat situation. One rural teen said: "A librarian's trying to do like 15 of those conversations at once they're going to mix up replies, mix up the …what and it it, I just don't think it'd be a very applicable…"

Reflecting Millennial Generation impatience, a suburban teen thought that chat reference would take too much time: "I don't really want to take the time actually to type out, like explaining what I'm doing, what I need it for, what type of sources I need." Others felt that typing limits too much and that asking difficult questions (like those for homework in high level math or science subjects) would prove too complex for librarians to answer.

Privacy Concerns

One interesting finding was that these young Millennials had serious privacy and security concerns, expressing apprehension about using VRS because they worry that chat situations may be unsafe since they do not know the librarians staffing the services. They said that because they did not know who would be providing the live chat VRS, there was a possibility that the staff might be dangerous individuals or cyber stalkers. Perhaps this is not surprising given the warnings young people are given to avoid giving personal information in open chat rooms and to the media attention to potential risks of possible interactions with internet predators and pedophiles. One urban teen said; "I don't usually like to talk to like people I don't know on the internet." A rural participant said:

"I'm not going to go get tutored on the Internet by somebody who I personally don't know who might be some psycho serial killer out there when I could get personal help from my home and people in my community."

Factors Influencing Future Use

When pressed on the question of what would encourage them to try VRS, some agreed that they might try it if it was recommended by the librarians, teachers, or friends they trusted. One rural student said they would try VRS only in desperation: "I don't think [I would use VRS] because I like going to people I know. I would probably try it as a last desperate resort…I'd feel a little creeped out talking to some random person about it but okay, I'd give it a shot." Participants felt that they also might give it a try if there was better marketing and publicity by librarians so that they would be reassured that the librarians want them to use the service. Others felt that VRS would be an option if they could choose a trusted librarian or one who would want to develop a positive interpersonal relationship with them. One participant mentioned that they would need to be reassured that they would get positive interpersonal feedback during the chat encounter.

Chat Transcripts – Data Collection and Analysis

A sample of 600 live chat reference transcripts out of a population of approximately 479,673 from OCLC's QuestionPoint[6] service were randomly selected over a period of eighteen months from July 2004 to November 2006. Of these transcripts, 492 were examined for this paper and 431 of these were deemed to be usable after eliminating system tests and chat sessions with severe technical problems. In the first analysis of the transcripts, a research assistant from the OCLC Office of Research made a

determination of educational level for each transcript either through user self-identification or coder inference from the transcript text. The five education level categories were: Primary School Student (grades k-5), Secondary School Student (screenagers, grades 6-12,), College Student (undergraduate and graduate), adult (not in college), and unknown. Self-identified cases included those in which the user revealed their year/grade level in school or age, or if there were tags in the XML data for grade in school. Other candidates for self-identification included: a user who mentioned having a child of a certain age which would indicate that the user is an adult or a user who stated that their assignment is for a college class, (e.g., Economics 101).

Cues in transcripts are also used to infer education level when it is not directly stated, such as the context or the subject matter of their questions. For example users who: a) indicate that they are employed in an area with multiple responsibilities, while not also indicating attending college classes could be coded as adult; b) indicate other adult responsibilities, such as owning real estate or entering into civil suits would also be coded as adult; c) ask for help in finding a journal article and directing their question to a college chat site can be coded as a college student; or d) use slang, spelling, and abbreviation patterns identified with younger users can be coded as secondary or primary (the distinction between the two usually coming from the context of the rest of the interaction or the subject or level of the question). Transcripts in which the education level was ambiguous (e.g., when an assignment could seemingly be either for an advanced high school class or for an introductory college class) were coded "unknown."

Once the determination of educational level had been made, in order to protect the privacy of the VRS users, and in keeping with university human subjects protocols, all

the chat transcripts were stripped of identifying information (e.g., name, email address, IP address, mailing address, telephone number) by the research assistant from the OCLC Office of Research. The "cleansed" transcripts next underwent analysis in which they were coded for interpersonal communication using Radford's Relational Communication category scheme to identify type and frequency of interpersonal communication. The qualitative analysis involved repeated reading, identification, comparison, and categorization of issues, patterns, and themes following the constant comparative method (Glaser & Strauss, 1967; Lincoln & Guba, 1985; see also Kaske & Arnold, 2002). The category scheme and coding method was developed in a manner similar to that used in a previous study involving large quantities of qualitative data (see Radford, 1993, 1999), and was applied to chat reference in prior research (Radford 2006a).

The theoretical perspectives of Watzlawick, Beavin, and Jackson (1967) and Goffman (1972, 1956) provide a framework for the development of the categories that focuses attention upon the content (task) versus the relational (interpersonal) aspects of communication and the complex nature of human communication behavior. The classification scheme for interpersonal aspects of chat reference that was developed by Radford (2006a) was further expanded and refined during the coding of the transcripts for this project. See Appendix B for the Radford Relational Communication Category Scheme.

QSR NVivo 7 (QSR International 2003-2006) software was used to assist the researchers in data analysis of the live chat transcripts and for coding both education level and interpersonal communication classification. This software product enables the

researchers to effectively sort large amounts of qualitative data into themes. It also provides numerous report options for data reduction and representation.

Transcript Analysis – Results and Discussion

Of the usable transcripts 25 (6 %)[7] self-identified as screenagers (secondary students) and an additional 40 (9%) were inferred to be teens for a total of 65 (15%). The remaining transcripts were classified into: primary school students, college students, adult (not in college) and unknown. The results of the self-identified and inferred screenagers (secondary students) (65, 15%) were compared to the results for those users (126, 29%) with an education-level classification known to be different than the secondary students.

Analysis revealed that many interpersonal dynamics that are present in FtF reference interactions are also present in VR. As can be seen in the Radford Relational Communication Category Scheme, relational facilitators that assist in relationship development and relational barriers that impede relationship development are identified in the transcripts. See Appendix C for an example of a transcript with Relational Facilitators and Appendix D for an example of a transcript with Relational Barriers.

Table 1, below defines the theme Relational Facilitators and Sub-Themes: Greeting and Closing Rituals, Deference, Rapport Building, and Rerepresentation of Nonverbal Cues (Radford, 2006a). Greeting Rituals are frequently seen in which the user establishes contact with a "Hi" or "Hello" in response to a usually canned script sent by the system, e.g., "Hello and welcome to Ask-A-Librarian. I am reading your question now." Similarly, Closing Rituals in which the user may thank the librarian for the information provided and may add a farewell such as "good bye" with similar typed response or script from the librarian such as "Thank you for using Ask-a-Librarian.

Please use our service again if you need additional information." Transcripts also reveal that users and librarians show deference to one another through inclusion of polite expressions, apologies, and repair strategies when mistakes are made. Rapport Building consists of conversational give and take, self disclosure, use of inclusive language (i.e., let's or we), use of slang or informal language, and other strategies common in FtF dialog. In addition, nonverbal communication is rerepresented by use of emoticons [e.g., ;)] spelling out of nonverbal behavior (i.e., ha ha), phrase abbreviations (i.e., LOL for Laughing Out Loud), use of all caps (i.e., FLAMING) and other rapidly evolving text-based techniques.

Table 1 Relational Facilitators- Themes and Definitions[8]

MAJOR THEME	**Definition**
Relational Facilitators	Interpersonal aspects of the chat conversation that have a positive impact on the librarian-client interaction and that enhance communication (see also Radford, 1993, 1999, 2006a).
SUB-THEME	**Definition**
Greeting Ritual	A hello message, marking the beginning of an interpersonal interaction by exchanging "salutations" (see Goffman, 1972, p. 76).
Rapport Building	Aspects of the interaction that "involve[s] conversation encouraging give and take, establishment of mutual understanding, and development of relationships" (Radford, 1999, p. 25).
Deference	Showing courtesy and respect for the other's experience, knowledge, and point of view. Regularly conveying one's appreciation and confirming the relationship between participants (Goffman, 1956).
Rerepresentation of Nonverbal Cues	The use of text characters or characteristics such as punctuation, emoticons, font, or abbreviations to compensate for nonverbal cues not present in face-to-face communication (see also Walther & D'Addario, 2001).
Closing Ritual	A goodbye message that signals the end of interpersonal encounters, "some form of farewell display performed during leave-taking" (Goffman, 1972, p. 79).

Differences in Relational Facilitators – Screenagers Compared to Others

Comparing counts and averages of occurrences for the Relational Facilitators found in Screenagers revealed interesting differences. As seen in Table 2, below, Screenager transcripts had lower numbers/averages in a number of categories.

Table 2 Relational Facilitators – Lower Numbers and Percentages for Screenagers

Category	Number Occurrences Screenagers (n=65)	Number Occurrences Others (n= 126)
Thanks	72 (1.11%)	163 (1.29%)
Self Disclosure	41 (.63%)	120 (.95%)
Agreement to Try Suggestion	39 (.6%)	93 (.74%)
Seeking Reassurance	39 (.6%)	87 (.7%)
Closing Ritual	25 (.38%)	69 (.55%)
Admitting Lack of Knowledge	10 (.15%)	30 (.24%)

Teens typically have low levels of self-disclosure and are not eager to either admit lack of knowledge or to agree to advice given, so these results are not unexpected (Radford, 2006b). It is also not surprising that they are engaging in fewer closing rituals, since they are generally impatient and may suddenly leave the chat session without saying goodbye because they have become distracted by web pages or search results pushed to their desktop by the librarian. However, it is surprising to see that they are saying "thanks" at nearly the rate of those at other educational levels (see also Mon, 2006), demonstrating better manners than are usually attributed to teens.

As seen in Table 3, below, Screenager transcripts had higher numbers/averages in a number of Relational Facilitator categories. Here, again, most of the above results are predictable. Young adults are known to favor typing shortcuts and alternative spellings,

which are reflected in Table 3 (see Carter, 2003, Zlinko 2006). The teens have embraced the key- stroke-conserving tactics of Instant Messaging and text messaging, which are seen prominently in these results. Many engage in text messaging using cell phones in which limited numbers of characters are sent per message. In chat sessions the speed with which one can complete and send the message determines how much faster a reply can be gotten. It is therefore not surprising that Millennials are more frequent in their use of alternate spellings, lower case (quicker since one does not have to shift) and alpha-numeric shortcuts such as ne1 (anyone) or g2g (got to go). Millennials are known for their enthusiasm (Sweeney, 2006), so it is also not surprising that they express their gratitude in the transcripts for librarian's help. However, it is surprising to see that they use more polite expressions (such as "please," and "have a good one") than other populations.

Table 3 Relational Facilitators – Higher Numbers and Percentages for Screenagers

Category	**Number Occurrences Screenagers (n=65)**	**Number Occurrences Others (n= 126)**
Polite Expressions	51 (.78%)	40 (.32%)
Alternate Spellings	33 (.51%)	19 (.15%)
Punctuation/Repeat Punctuation	23 (.35%)	28 (.22)
Lower Case	19 (.29%)	24 (.19%)
Slang	9 (.14%)	3 (.02%)
Enthusiasm	8 (.12%)	9 (.07%)
Self-Correction	7 (.11%)	6 (.05%)
Alpha-Numeric Shortcuts	3 (.05%)	0

Table 4, below, defines the theme Relational Barriers and the Sub-Themes including: Relational Disconnect/Failure to Build Rapport, which includes use of language that is condescending, rude, impatient, reprimanding, or robotic. Closing

Problems are seen in transcripts in which either the librarian or user ends the chat session suddenly without a proper goodbye. Negative Closure includes strategies used by the librarian to end the interaction without actually answering the information need (see Ross & Dewdney, 1998).

Table 4 Relational Barriers[9]

MAJOR THEME	**Definition**
Relational Barriers	Interpersonal aspects of the chat conversation that have a negative impact on the librarian-client interaction and that impede communication (see also Radford, 1993, 1999, 2006a).
SUB-THEME	Definition
Relational Disconnect/Failure to Build Rapport	Failing to encourage give and take, establish mutual understanding, and engage in relationship development (see Radford, 1999, p. 25).
Closing Problems	Ending the chat interaction without a closing ritual or exchange of farewell or goodbye (see Goffman, 1972).
Negative Closure	Strategies "that library staff uses to end the reference transaction, apart from providing a helpful answer" (Ross & Dewdney, 1998, p. 154).

As can be seen in Table 5, below, Screenager transcripts had higher numbers/averages in three of the relational barriers categories. Abrupt Endings come with the "cyberterritory" in live chat where the "disappearing user" is a puzzle for the librarian who is left to wonder if the system had technical problems, or if the user just had to leave the computer for unknown reasons. Millennials are known for their multi-tasking (Sweeney, 2006), so it is very possible that they have other chat windows open, get involved in a phone conversation, or focus on other tasks and leave the chat session suddenly. The Millennial teens are also impatient, so again this result is not unexpected (Sweeney, 2006). The number of screenagers who were seen as rude or insulting is low, reflecting findings from the results of research for a statewide chat service (Radford,

2006a). This finding may be viewed as surprising to some since many chat librarians believe that a higher number of teens are rude in chat reference encounters.

Table 5 Relational Barriers – Higher Numbers and Percentages for Screenagers

Category	Number Transcripts Screenagers (n=65)	Number Transcripts Others (n= 126)
Abrupt Endings	26 (.4%)	37 (.29%)
Impatience	6 (.09%)	2 (.02%)
Rude or Insulting	2 (.03)	0

Future Research

The focus group interview and transcript analysis findings reported here are preliminary results from the first year of a two year study. Transcript analysis is continuing with a goal of analyzing a total of 1000 chat sessions. The next two phases of the grant project involve 600 online surveys (200 with each participant group of users, non-users, and librarians) and 300 telephone interviews (100 with each participant group). Online surveys are presently being constructed which build on the results presented here and will probe more deeply into the research questions that focus on preferences for modes of communication and on issues of satisfaction. Following the conclusion of all data analysis, a theoretical model will be constructed that encompasses content and relational dimensions in the VRS environment.

Conclusion

From the results reported above, it is clear that screenagers from a variety of environments have different communication and information behaviors than those of previous generations. Urban youth in focus group interviews had similar responses to the rural and suburban groups to almost all questions on their communication choices with

the exception of a delayed adoption of chat instant messaging (see also Agosto & Hughes-Hassell, 2005). Many of the teens had traditional and stereotypical views of libraries and librarians which carry over into their decision-making process for choosing VRS. They worry about chat conversations with strangers and have been told to avoid potentially dangerous situations online, so they need to be reassured by trusted adults or friends before they will try VRS.

Focus group interviews reveal that relational dimensions are critically important to adolescents who are experiencing a period of rapid emotional as well as physical development (see also Kuhlthau, 2004). Valenza (2006) notes that a blend of FtF and electronic services may be best: "For today's learners, libraries can be exciting hybrid experiences of face-to-face lessons learned, reinforced with effective online supports" (p. 23). According to Hallam and Partridge (2006), to effectively meet the needs of Millennial youth, library educators must teach librarians to develop a range of services that is customizable and flexible, incorporates regular feedback, provides trusted guidance, includes the opportunity for social and interactive learning, is visual and kinesthetic, and includes communication that is real, raw, relevant and relational.

Walter and Mediavilla (2005) recommend involving teenagers in the development and evaluation of VRS services. "It would be interesting to see what would happen if the designers of such online reference services followed the principles of good young adult library practice and involved the teens as active participants in both the planning and the delivery of the services. At the moment, teens are from Neptune, librarians are from Pluto. Better services would result if they could meet somewhere closer together in cyberspace" (p. 14).

This research project is reaching out to young Millennials to learn more about their communication and information-seeking behaviors. One goal of the project is to gain a greater understanding of their preferences and needs to ensure that virtual and FtF library services are responsive to their needs. Future relevance and sustainability of library services may hang in the balance in this Google-dominated information environment. Once research uncovers more empirical evidence about the best ways to communicate with the Millennials, the unexpected will turn to the expected, and ignorance and misunderstanding will turn to knowledge and insight.

Appendix A – Focus Group Questions for Non-Users of Virtual Reference Services (Ages 12-18)

1. When you are stuck in a homework assignment and need information, what do you do when you need help?

2. When you need help with homework and decide to get help from a librarian, what do you do?

   [PROBES: do you usually go to the library, email a librarian, or call the library on the phone? How do you decide what kind of help to try?]

3. Do you know that you can ask librarians questions or for help using email or IM (instant messaging)? If yes, why haven't you tried them?

4. Would you like to try "IM"ing or chatting with a librarian for help? What would make you interested in trying email or IM to get help from librarians?

5. What have you heard about getting librarian help or getting library resources on the Web from your friends or teachers?

Appendix B – Radford Relational Communication Coding Scheme

FACILITATORS
- Greeting Ritual
- Deference
  - Agreement to try what is Suggested
  - Apology
  - Asking for Other to Be Patient
  - Expressions of Enthusiasm
  - Suggesting Strategy or Explanation
  - Thanks
  - Polite Expressions
  - Praise, Admiration
  - Self-Deprecating Remarks
- Rapport Building
  - Familiarity
  - Humor
  - Interjections
  - Offering Confirmation
    - Approval
    - Empathy
    - Inclusion
  - Offering Reassurance
    - Encouraging Remarks, Praise
    - Enthusiastic Remarks
  - Repair Self Correction
  - Seeking Reassurance, Confirmation Self Disclosure
  - Self Disclosure
    - Admitting Lack of Knowledge At A Loss
    - Explaining Search Strategy
    - Explaining Technical Problems
    - Offer Personal Opinion Advice Value Judgment
  - Use of Informal Language
    - Alternate Spelling, Abbreviated Single Words
    - Lower Case
    - Slang Expressions
  - Rerepresentation of Nonverbal Cues
    - ALL CAPS
    - Alpha-Numeric Shortcuts
    - Asterisk
    - Ellipsis
    - Emoticons
    - Phrase Abbreviations
    - Spells Out Non-Verbal Behaviors
    - Punctuation or Repeated Punctuation

Closing Ritual
- Explanation Signing Off Abruptly
- Invites to Return If Necessary
- Makes Sure User Has No More Questions
- Offers to Continue Searching & E-Mail

BARRIERS

Negative Closure
- Abrupt Ending
- Disclaimer
- Failure to Refer
- Ignoring Cues That User Wants More Help
- Premature or Attempted Closing
- Premature Referral
- Sends To Google

Relational Disconnect Failure to Build Rapport
- Condescending
- Derisive Use of Spelling Out NV Behaviors
- Disconfirming
- Failing to Offer Reassurance
- Failure or Refusal to Provide Info
- Goofing Around
- Ignoring Humor
- Ignoring Self-Disclosure
- Impatience
- Inappropriate Script or Inappropriate Response
- Inappropriate Language
- Jargon, No Explanation
- Lack of Attention or Ignoring Question
- Limits Time
- Mirrors Rude Behavior
- Mistakes
- Misunderstands Question
- Reprimanding
- Robotic Answer
- Rude or Insulting

Appendix C – Sample Transcript with Relational Facilitators "Mathematics in the Islamic Empire"

(Note: U=User, L=Librarian)

1	**U**	i need a good website about the accomplishments of mathrmatics during the islamic empire
2	**L**	[A librarian will be with you in about a minute.]
3	**L**	[A librarian has joined the session.]
4	**L**	[You have been conferenced with MD]
5	**L**	(Name) welcome to (service name) I'm looking at your question right now; it will be just a moment.
6	**L**	Hi (name) - sorry about the delay there. This is (name), a librarian in Baltimore County...
7	**U**	ok
8	**L**	Okay, we should be able to find something on that topic. Math and Islam. Just a minute or two while I search. Please let me know if there's anything specific in this area that you're looking for, okay?
9	**U**	i don;t care about the delay i have plenty of time
10	**L**	Thanks for understanding. We just had a very busy spell on the service and I just finished up another call. Let's see... searching now.
11	**U**	i just need any certan mathematicians or the accomplishments of mathematics during the islamic Empire
12	**L**	Okay, to start I'm going to send you an article linked from the Math Forum:
13	**L**	[Page sent]
14	**L**	It should show on your screen in just a few seconds. Are you able to see it? the title is Arabic mathematics : forgotten brilliance?
15	**U**	thank you very much
16	**L**	Great - glad you can see it! There was one other article - did you want me to send it to you, or are you okay with just this one?
17	**U**	yes plaese
18	**L**	Okay, just a sec.
19	**L**	[Page sent]
20	**U**	i spelled please wrong
21	**L**	The title of this 2nd page I just sent was, "The Arabic numeral system"
22	**U**	thank you
23	**L**	No problem on the spelling. :) Typing this fast it's giong to happen.
24	**L**	*going*
25	**L**	Okay, what do you think? Will these answer your questions?
26	**U**	yes thank you
27	**L**	Great! Please do write us back if you need anything else.
28	**L**	Thank you for using name service! If you have any further questions, please contact us again. If you provided an e-mail address, you should receive a full transcript in a few minutes. You may click the "End Call" button now.

29	**U**	i am doing a history reseach project and i am having trouble finding things
30	**U**	[patron - has disconnected]
31	**U**	i am doing a history reseach project and i am having trouble finding things
32	**L**	Oh, well if you need any more detailed info, the subscription databases available through the Harford County home page should help. Let me know if you'd like any assisitance in that area.
33	**L**	[Thank you for using (service name!) If you have any further questions, please contact us again. If you provided an e-mail address, you should receive a full transcript in a few minutes. You may click the "End Call" button now.]
34		Note to staff: COMP [user has closed this session]

Discussion of Relational Facilitators in "Mathematics in the Islamic Empire" Transcript

The interaction between a librarian and a user can take many forms; however, the best form is an interaction with positive turns in the interaction, acknowledgement of one another, rapport building strategies, and displays of deference. The above example of a positive interaction demonstrates a positive interaction between a librarian and user, with many examples of relational facilitators. Deference, for example, is shown by the librarian in several places in this transcript. Immediately as the librarian greets the user, the librarian apologizes for the delay in responding to the user's query (line 6). Later in the transcript, the librarian again exhibits relational facilitators by thanking the user for being patient (line 10) and by also sharing enthusiastic comments with the user (line 16). Another excellent example from this transcript that highlights a relational facilitator in action is where the librarian reassures the user after a mistake in typing is noted (lines 20 and 23) and crowns the reassurance with a smiley face emoticon to encourage the user. The user demonstrates deference in return by in repeated use of polite expressions and thanks (lines 15, 17, 22, & 26). In line 25 the librarian is again deferential to the user in seeking feedback and approval. The librarian shows kindness, encouragement (line 23) and enthusiasm (line 27) to the user, all of which are relational facilitators which build rapport Lastly, even after the user logs off the librarian continues the positive interaction by inviting the user to return to use the service if further help is needed (lines 32 & 33).

Appendix D –Sample Transcript with Relational Barriers "Physics"

(Note: U=User, L=Librarian)

1	U	Physics
2	L	[Please hold for the next available librarian. If you would like a transcript of this session emailed to you, please type your full email address now.]
3	L	[A librarian has joined the session.]
4	U	when you drive forward in a bumper car at high speed and then you slam into the car in front of you, you find yourself thrown forward in your car. Which way is ur car accelerating?
5	L	thank you for holding I was working with another patron.
6	L	Is this a homework question.
7	L	I'm not an expert on driving so I really can't answer that.
8	U	can u find a website or something
9	L	I'm not sure what you are asking.
10	U	when you drive forward in a bumper car at high speed and then you slam into the car in front of you, you find yourself thrown forward in your car. Which way is ur car accelerating?
11	U	....
12	U	hello?
13	L	Is this a homework a homework assignment. what subject is it.
14	L	I really don't understand how I can answer that for you.
15	U	can i hav another librarian
16	L	The information you gave you me does not help me find any resources to help you.
17	L	What do you mean by which way is your car accerlaerating. Are you sure thats what your assignment asks.
18	U	yes
19	L	What subject is this question from?
20	U	physics
21	L	Okay just one moment.
22	L	[Page sent]
23	L	This is one site that may help.
24	L	[Page sent]
25	L	[Page sent - LeapStart Learning Table. Learning Starts Here!]
26	L	this is another site that youmay try forhelp.
27	L	When we disconnect youwill have these links in a transcript.
28	L	[Page sent]
29	L	This site looks to be very helpful.
30	L	[Page sent - The Physics Classroom]
31	L	[Page sent - The Physics Classroom]

32	L	[Page sent - The Physics Classroom]
33	U	this isn't helpful
34	L	Well I really don't have any other resources that can assit you.
35	L	[Page sent - The Physics Classroom]
36	L	I cannot answer the question for you, I don't have the physics knowledge.
37	L	Maybe you will need to ask your instructor for a clear understanding.
38	L	[Page sent - The Physics Classroom]
39	U	do u kno ne1 who does
40	L	[Page sent - The Physics Classroom]
41	U	Sorry I do not.
42	U	ok
43	L	I have a few patron that I ned to assist.
44	U	ok bye
45	L	[Thank you for using (service name)! If you have any further questions, please contact us again.]
46		Note to staff: COMP [user has closed this session]

Discussion of Relational Barriers in "Physics" Transcript

The above transcript demonstrates a negative interaction between a librarian and user with multiple examples of relational barriers. The user initiates the chat session by providing the subject area for the inquiry: "Physics." However, this primary piece of information is not attended to by the librarian who later asks the user to disclose this information again (see lines 13 and 20). While the librarian could have asked probing questions or performed a query negotiation at any moment during this encounter, no attempt was made to clarify the user's question other than asking about the subject and asking if this is a homework assignment (lines 6 and 13). Other examples of relational barriers include several occasions when the librarian avoids assisting the user and offers disclaimers (see lines 7, 34 and 36) including lack of subject knowledge. It becomes evident that the user is dissatisfied with the assistance from this particular librarian when the user asks if another librarian can assist them (line 15) and again when the user provides feedback that the web resources pushed to his/her desktop are not helpful (line 33). The librarian uses a negative closure strategy in sending the user back to their teacher (line 37). In line 39 when the user asks if the librarian knows anyone (ne1) else who can help, the user is asking for a referral, but the librarian refuses to provide one (line 41). As a final rebuff, the librarian provides an excuse to leave and limits their time by saying he/she had other patrons to assist (line 43).

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[1] This research has been funded by the Institute of Museum and Library Services, Rutgers, the State University of New Jersey, and OCLC Online Computer Library Center, Inc. The project website is http://www.oclc.org/research/projects/synchronicity/. The authors would like to thank Jocelyn DeAngelis Williams, Julie Strange, Patrick Confer, Mary Anne Reilly, Timothy Dickey, Stephanie Kip, and Vickie Kozo for their help in data collection and analysis. In addition, the authors owe a debt of gratitude to the librarians and teachers who assisted in arranging the focus groups and to all the participants of the focus groups, and to the anonymous VRS librarians and VRS users whose transcripts were analyzed.

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[4] Percentages are rounded to the nearest whole number for demographic data.

[5] Participants' names have been changed to protect anonymity. Participant comments appear verbatim. Interviewer comments to call upon next speaker have been removed to heighten readability.

[6] The international VRS provider, OCLC Online Computer Library Center's QuestionPoint, is supported by a global network. It has been developed by OCLC and the Library of Congress and has recently merged with 24/7 Reference developed by the Metropolitan Cooperative Library System in Southern California. QuestionPoint is used in more than 1,000 libraries in twenty countries; 24/7 serves approximately 500 libraries (http://www.oclc.org/questionpoint).

[7] Percentages are rounded to the nearest whole number for demographic data.

[8] An earlier version of this table was published in Radford (2006a, p.1049).

[9] An earlier version of this table was published in Radford (2006a, p.1053).