

# Users Behavior towards Information-Seeking and Preferences for Orientation Medium: an Assessment between Faculty and Students

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**Abstract:** *This study examined the information seeking preferences of 100 university faculty, staff, students, and librarians at a doctoral granting institution in the south eastern United States. Participants were asked to identify in what way they would prefer having both factual and research questions answered by the library. Findings suggest participants preferred face-to-face reference interactions over a suite of virtual reference options. In the aggregate, e-mail was the preferred virtual reference service over telephone and online chat with little interest in text messaging or Skype video. Statistically significant differences among users, however, emerged when interactions between type of question, age, race, and gender were considered. Faculty and staff preferred e-mail and telephone while students preferred online chat and, to a lesser extent, text messaging. Implications of the study suggest user preferences appear to be significantly influenced by demographic factors and type of question. Different library reference support strategies may need to be designed and implemented to meet those needs.*

**Keywords:** Information, Seeking, Behavior, Implications, Statistically

## I. INTRODUCTION

In the quickly moving world of the information age, information seeking behavior is increasingly multi-faceted, on demand, real-time, and diverse. Despite the emergence of the Internet and the availability of a wide variety of robust search engines that can seek information with increasing speed and accuracy, people are turning to their school, public, and academic libraries more frequently and in larger numbers than ever before.

Libraries are urgently attempting to reinvent themselves and fully embrace the challenge of meeting the needs of their users in a climate of rapid change where information seekers have many options, little patience, and use many different types of information and communication technology.

As academic libraries become fully immersed in the twenty-first century, they are beginning to realize that to best meet user needs, they must first look at user preferences. With the proliferation of online resources and distance education opportunities, many libraries are attempting to meet user demands by expanding their reference services beyond the face-to-face or telephone reference interaction. Rather than offer a one-size-fits-all reference service, many libraries now provide a suite of reference services which include both synchronous real-time interaction such as online chat or video conferencing and asynchronous reference services such as e-mail and short messaging service/text messaging. There is no significant difference in users' opinions of a virtual reference service and their willingness to use it that is caused by the design of the interface, provided the link meets two conditions: users are aware of its existence it is easily seen, and the link is clearly labeled with its function the text "Ask a Librarian" as opposed to a text-free image.

Other studies have found that users prefer particular types of reference mediums for particular types of questions.<sup>6</sup> Rather than promote the "build it and they will come" approach to library services, library staff may want to first examine who their users are and their respective preferences and then develop library services to support them.

Understanding user information seeking behavior within the library context will help better inform libraries about reference user preferences. Realizing differences in user preferences by type of user, age, and gender will allow libraries to design their information services with greater precision, effectiveness, and efficiency. Do actual differences exist? This study seeks to answer this question by examining information seeking behavior and reference service

preferences of university faculty, staff, students, and librarians at a doctoral granting institution in the southeastern United States.

## **II. LITERATURE REVIEW**

### **User Information Seeking Preferences for Reference Services at Libraries**

The research literature on user information seeking preferences and references services presents mixed results. In a survey of 100 respondents across two State University campuses, Cummings et al. found users preferred seeking library assistance through the library.

Grandfield and Robertson found that preference for a reference medium may be dependent upon whether an individual is seeking assistance from within the library or virtually. While face-to-face, telephone, e-mail, and chat reference are becoming commonplace; text and video reference are newly emerging reference mediums in many academic libraries. Though there is little comparative data about user preferences for these services, research suggests that usage of these emerging reference mediums is limited. Usage of online video conferencing as a reference medium is beginning to emerge within academic libraries. Enhancing online reference service with audio and video capability holds the promise of duplicating the physical reference encounter. Preliminary findings of two pilot projects at Ohio University Libraries, however, found usage of Skype video reference a hybrid of online chat, audio, and video conferencing was limited. Booth noted, "Although video is enabled on the desk computer most users prefer voice or chat options."

### **Are Particular Types of Reference Mediums Better Suited for Particular Types of Questions?**

Throughout the literature, research findings suggest that different types of reference mediums are better suited for particular types of questions. In a review of instant message reference transactions at Southern Illinois University, Desai found instant messaging reference "is good for quick exchanges and anonymous sharing of information. But as in traditional face-to-face reference, patrons ask a wide variety of questions, some requiring extensive answers." In a survey study of chat users, Ward found that undergraduates saw the "chat" service as being applicable for most situations, while graduate students recommended the service noticeably more for ready reference questions.

In a review of both chat and e-mail reference transcripts, Lee found many similarities among the questions asked using the two mediums. He found both chat and e-mail virtual reference received approximately the same proportion of questions about finding known items and research and reference. Differences, however, were noted between the two mediums. He found e-mail received a small, though significant, number of questions about referencing and citation, while chat received none of these questions. Finally, though providing digital reference services may be an attempt to duplicate the face-to-face reference transaction, users may not approach video reference with the same intentions as they may a physical reference desk. Booth noted, "Overall trends confirmed our hypothesis that

While type of question may play a factor in reference medium choice, another factor to consider is the role of the user. The literature, however, suggests that regardless of age or role, information seeking behavior tends to follow the Principle of Least Effort. Poole found the Principle of Least Effort to be the strongest result in a review of a dozen information seeking studies. "Least effort" does not mean people choose the lazy route but rather, information seekers, in general, attempt to minimize the overall work associated with something both now and in the future. Rubin further explains that "people will seek the most convenient source to meet their information need." This principle is illustrated in a focus group study of 33 university faculty, undergraduates and graduate students at University of Idaho Library. Though humans may follow the path of least effort, this path differs among particular types of information seekers, as depth of information needs may differ according to university status. In a study of health sciences university faculty, students, and residents, De Groote, Hitchcock, and McGowan found that "as users have become more sophisticated information seekers, their demands of librarians have evolved to require more." This may suggest that university faculty or graduate students may choose a more robust reference medium such as e-mail to meet their research needs, while undergraduates, whose overall research needs may be posited to be of lesser depth and complexity, may choose a reference medium such as online chat or text messaging, mediums which lend themselves to quicker exchanges of less dense information.

While role may influence the depth of information need, age may increasingly become a factor in reference medium choice in the not-so-distant future. Current trends suggest that as today's adolescent population enters college campuses within the next five to ten years, a shift toward seeking information or reference assistance via one's mobile device,

such as using text messaging may become more common. "A Generation Unplugged," revealed an exponential increase in text messaging among young adults aged 13 to 19 years, with the proportion of Age may play a further role in the selection of virtual reference medium as it relates to one's comfort or intimidation with particular choices. In an online survey of individuals who had used virtual reference (online chat) services in the past, Conway and Radford found Net Generation users rated online chat as the least intimidating method of seeking reference. Current literature suggests users may select their virtual reference medium according to the type of question they have. Role may also be an influencing factor in determining reference preferences. No study, however, has examined these questions collectively and with a large enough sample size for significant statistical analysis.

- RQ1: Which virtual reference mediums do library reference users prefer?
- RQ2: Are there differences in user preferences for virtual reference mediums based on type of question?
- RQ3: Are there differences in user preferences for virtual reference mediums based on type of user and type of question?

### III. METHOD

To assess user information seeking and library reference preferences, this study examined user preferences for face-to-face and five virtual, or not in person, reference support services offered by an academic library: e-mail, telephone, online chat, Skype video conference, and text messaging. Prior experience with university library services and whether there was an interaction effect between type of user, type of question, and reference medium were also explored.

#### 3.1 Participants

An online survey was sent via e-mail to a randomly selected group of university students (N = 100) with a 14.2 percent (n = 100) response rate and to all permanent faculty and staff (N = 3,840) with a 14.3 percent (n = 551) response rate. While a total of 936 participants completed some portion of the survey, the overall completion rate of the entire survey among participants was 84 percent (N = 100). Demographically, study participants were 31 percent staff, 30 percent faculty, 22 percent undergraduate, and 17 percent graduate students, predominately female (71 percent to 29 percent male), and predominately white (78 percent, 12 percent black, 5 percent Asian/Pacific Islander, and 4 percent multi-racial).

#### Types of Virtual Reference Services Offered at the University Library

Six means for obtaining reference assistance were available to participants in the study through the traditional types of reference services provided by the participating academic library: face-to-face, e-mail, telephone, online chat (instant messaging), text-messaging using a cell phone, or Skype video conferencing. The virtual reference services are accessible from the library's website. Users can seek *face-to-face reference* services by approaching the reference desk, which is located on the ground floor and is situated strategically along the main walkway of the library.

*E-mail reference* services involve users either e-mailing the reference desk via an online e-mail form available from the library's Ask Us Webpage or contacting a departmental liaison directly. Incoming e-mails from the Ask Us Page are sent to a departmental e-mail address which one individual is assigned to monitor at any given time. Additionally, numerous library subject/research guides are available on the library's website, each containing e-mail links to subject specialists within the library.

*Online chat or instant messaging reference* services involve users engaging in an online chat with the reference desk through an embedded chat feature available from the reference department's Ask Us Webpage, the main library homepage, and on each library subject/research guide. If monitored, the online chat box will display "available." The university library uses an online chat management system, "Library Help," which allows an unlimited number, though typically around five or six, library reference staff members to be logged in and monitoring incoming chat messages at any given time. Two reference staff members housed in a back office of the library monitor telephone and online reference inquiries. *Online video conferencing reference* services at the participating library involve a user seeking reference help through Skype video conferencing. Skype, a free software application, allows users to make voice and video calls over the Internet.

### 3.2 Online Survey Instrument

An 11-item online instrument was developed by the authors to determine virtual reference user preferences of university patrons. While some questions were based off instruments from previous research studies, the survey was formulated based on the study's unique research questions. Questions 1–4 sought demographic information (university classification, gender, race, and age). Questions 5 and 6 inquired about participants' prior experience with and knowledge of reference services at a university library. Questions 7 and 8 asked participants to rank order their virtual reference seeking preference for answering a procedural based, research question and quick, factual question. Questions 9 and 10 examined user preference from another perspective by allowing respondents.

### 3.3 Librarian Focus Group and Interview

Reference library staff (n = 13) also participated in a focus group. During this session, participants responded to six questions developed to ascertain their thoughts and preferences surrounding virtual reference, as well as predict future trends. Questions used included Q2, "Based upon your experience, which of the reference mediums.

### 3.4 Data Analysis

Using Excel and SPSS 17.0, results were analyzed using qualitative factor analysis of open ended comments, descriptive statistics, differences in means across user groups through analysis of variance (ANOVA), which is used to compare one dependent variable across multiple independent groups, multivariate analysis of variance (MANOVA), which is used to compare multiple dependent variables across multiple independent groups, Fisher's least significant difference (LSD) post hoc tests, analysis of covariance (ANCOVA), linear regression curve fit, and Pearson Product Coefficient correlations.

## IV. RESULTS

Participants Most Familiar With and Aware of Face-to-face and E-mail Reference Services Seventy two percent of respondents had prior experience with at least one form of reference service at the university library that was studied:

- Face-to-face reference was the most commonly used (49 percent, n = 100).
- E-mail was the second most commonly used (36 percent, n = 100).
- Telephone (24 percent, n = 100) was third.

Disaggregating the data, however, by type of question (factual and research) identified statistically significant trends and differences. Participants were asked to rank their preference for five virtual references:

- E-mail again had the highest mean ranking across both types of questions at 2.2 out of 5.
- Telephone was again second with a 2.4 average rating.

To determine whether there were statistical differences between user preferences for a particular reference medium for factual questions, a multivariate analysis or MANOVA was conducted. Overall, a statistically significant difference between user rankings and reference medium for factual questions was found, which suggests that these differences were statistically significantly different enough to represent different populations. More specifically, user preference rankings were statistically significantly different across users for three reference mediums.

#### For research questions, e-mail was most preferred:

- E-mail was the preferred reference type 42 percent (n = 321) of all participants.
- Telephone was second at 29 percent (n = 223).
- Different Virtual Reference Preferences by Question Type and User Group
- Faculty, staff, and graduate students ranked e-mail and telephone as their first and second choices, respectively.
- Undergraduate student's ranked overall online chat as their top rated choice followed by telephone.
- For factual questions, faculty, staff, and graduate students preferred e-mail and telephone almost equally, while undergraduates rated online chat higher:
- Statistical significance between group differences for user preferences for telephone, significant differences were found for chat and Skype all users rated each consistently high and low, respectively.

### **Qualitative Factor Analysis Suggests Convenience and Speed are Primary Factors**

- Convenience, familiarity, and ease-of-use.
- Second was that e-mails provide a written record that was precise and in-depth.
- Traditional face-to-face reference services were found to be, in the aggregate, the preferred method of reference.

### **Gender Differences across Reference Mediums**

A comparison of mean rankings through MANOVA found no significant main effect for gender differences across reference mediums. A significant between-group effect for gender by type of question for text messaging was found for both factual questions, Females ranked text in higher proportions at second ranked and fourth ranked (out of five) than males. Gender was found, however, to be a significant covariate for participant rankings for text for both factual and research questions, for Skype and research questions, and for selection of only one reference medium including face-to-face for factual questions.

### **Age Differences across Reference Mediums**

MANOVA found a significant main effect for age by virtual reference medium:

Controlling for age as a covariate through analysis of covariance (ANCOVA) found that age was a statistically significant factor for participant preference for all mediums with both questions except for e-mail by research question. When controlling for age, significant differences disappeared for telephone only for both factual and research questions. Age was not found to be a significant covariate when participants were asked to select only one reference medium, which included face-to-face as an option.

### **Race Differences across Reference Mediums**

- For factual questions for all reference mediums except for telephone (ranked high by all groups) statistically significant differences for race were found:

### **Impact of Race, Gender, and Age on Participant Reference Medium Preferences**

Using analysis of covariance (ANCOVA) to examine the impact of race, gender, and age on reference medium preferences, it was found that race was not found to be a significant covariate, while both gender and age were. After controlling for both gender and age as covariates for participant rankings by virtual reference mediums:

In a focus group conducted with reference librarians at the participating university library, participants indicated that online chat is “without a doubt” the most popular reference medium choice for library patrons both for quick factual questions and research questions. If individuals, however, already have established relationships with particular librarian’s subject librarians or librarians embedded in classes, e-mail seems to be more popular. Usage of online chat and e-mail fluctuates depending on the time of day as well as the timeframe in which a library patron needs a response. If a student has an immediate need, they may choose online chat. If there is more flexibility, students may choose e-mail instead, which is consistent with the results from the university survey.

## **V. DISCUSSION**

The results of this study both support and extend the findings of previous research. Face-to-face reference is still the preferred method among university users. E-mail, telephone, and online chat also remain viable options. The type of question does influence the type of reference medium preferred. Text messaging, despite being popular socially, is not a preferred method of seeking reference services. Online voice and video conferencing (i.e. Skype, Google chat, etc.) is similarly not preferred for reference services although data suggests there may be underlying potential and preference among younger users as they become more prevalent in daily use.

### **Research Question 1 Which Virtual Reference Mediums Do Library Reference Users Prefer?**

At the university that was studied, based on participant survey responses, only four reference services that involve direct contact with a librarian are used with any degree of frequency—face-to-face (49 percent), e-mail (36 percent), telephone (24 percent), and online chat/instant messaging (15 percent). Usage metrics support these four reference



mediums. While face-to-face walk up reference service is still consistent and ongoing, e-mails tend to be less general and more specific to librarians who are assigned to support various academic units, leaving online chat/instant messaging as the primary general reference service activity that takes place frequently.

### **Research Question 2 Are There Differences in User Preferences for Virtual Reference Mediums Based on Type of Question?**

In support of the findings discussed in the literature review, this study's findings suggest that user preferences for virtual reference services do indeed differ by the type of question.<sup>30</sup> User rankings differed significantly for seeking help with a factual question using telephone, e-mail, and text. Rankings for online chat and Skype were more equally dispersed. For research questions, user preferences were statistically significantly different for all five virtual reference types.

### **Research Question 3 Are There Differences in User Preferences for Virtual Reference Based on Type of User and Type of Question?**

The study's findings suggest that based on university status, age, gender, and race, specific users have particular reference preferences based on type of question. Faculty, staff, and graduate students ranked telephone for factual questions at significantly higher levels than undergraduate students. Faculty and staff prefer using e-mail for factual questions at significantly higher levels than both undergraduate and graduate students while students have a significantly higher preference for using text messaging. Interestingly, all user groups rated online chat relatively high for seeking help with a factual question.

### **The Impact of Gender, Age, and Race on Virtual Reference Preferences for medium**

No significant trends emerged for gender and virtual reference preferences except for one small significant difference where females ranked text messaging lower as a reference medium. Closer examination by age showed that this difference was largely because the younger age group preferred text (males who were 24 years or younger ranked text second overall while females who were 24 and younger ranked text third overall) but this demographic only represented 20 percent (n = 100) of the entire sample and males (n = 25) were only a small portion of this. A preference for text messaging reference among younger populations comes as no surprise when one considers research report, "A Generation Unplugged," which revealed an exponential increase in text messaging among young adults aged 13 to 19 years. Controlling for gender, age, and race accounted for the significant differences found for telephone (older participants preferred telephone) for both factual and research questions while rankings for e-mail and text were still found to be significantly different across participants and type of question.

## **VI. LIMITATIONS AND FUTURE RESEARCH**

The study has four primary limitations. First, the sampling frame involves participants from only one mid-sized university. Although much of the results align well with previous findings, they cannot be generalized beyond the population studied. Second, 28 percent of the participants had no prior experience with reference services at the library and therefore were offering relatively uninformed opinions on which services they would prefer. Certainly this weakens the overall validity of the study's findings. Third, the researchers did not include the option of the 24/7 online chat service available cooperative in their survey questions.

## **VII. CONCLUSION**

Libraries across the country are beginning to develop virtual reference services to meet the continuously increasing demands of remote library users. A nationwide survey found that 56 percent of the nation's public and academic libraries (N = 100) reported offering virtual reference. Of those, 48 percent (n = 100) offer chat, while 86 percent (n = 100) provide e-mail support. As libraries continue to add online chat and e-mail reference service mediums and begin to consider adding text messaging and video conference reference, research suggests users' preferences for these services will be dependent upon the type of question and type of information seeker.

Research suggests that today's adolescent population will continue to be heavy text messaging users. Academic libraries must be poised to respond to these quickly emerging information seeking trends as this generation will soon be arriving on college campuses. Further, video conferencing may hold a place in the future of academic libraries. As mobile texting and video conferencing become more commonplace and user friendly, it may be only a matter of time before library users begin to demand these types of reference services as well. Familiarity, convenience, and speed appear to be the primary factors behind user information seeking preferences both for face-to-face and virtual reference services. Online chat appears to be the emerging reference of choice for the younger generation, while e-mail and telephone are preferred by users more than 25 years old. While the type of question is a factor, our findings suggest that the most important factor is age and comfort level with the technology they use on a day-to-day basis. Despite the growing plethora of ways for library users to seek help through technology mediums, face-to-face would appear to still be the preferred method of choice for library reference services for users in a university academic setting.

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