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Searching for salvation: An analysis of US religious searching on the World Wide Web

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A B S T R A C T

The goals of this research were to answer three questions. How predominant is religious searching online? How do people interact with Web search engines when searching for religious information? How effective are these interactions in locating relevant information? Specifically, referring to a US demographic, we analyzed five data sets from Web search engine, collected between 1997 and 2005, of over a million queries each in order to investigate religious searching on the Web. Results point to four key findings. First, there is no evidence of a decrease in religious Web-searching behaviors. Religious interest is a persistent topic of Web searching. Second, those seeking religious information on the Web are becoming slightly more interactive in their searching. Third, there is no evidence for a move away from mainstream religions toward non-mainstream religions since the majority of the search terms are associated with established religions. Fourth, our work does not support the hypothesis that traditional religious affiliation is associated with lower adoption of or sophistication with technology. These factors point to the Web as a potentially usefully communication medium for a variety of religious organizations.

Introduction

Given the Web's importance, we need to understand how people use and interact with Web search engines and understand the Web searching trends that are emerging over time with regard to religious and religious-like information needs. There has been only limited large-scale research examining how people are using the Web in regards to their religious side of life. How are they searching? What information are they looking for? How are searching patterns changing, if at all, over time? Are they finding the information that they need? What trends for religious searching can we predict for the future? These are the questions that motivate our research. An understanding of how people are using the Web for religious aspects of their lives may help in understand a variety of ongoing religious trends.

Fuller claims that "The United States is arguably the most religious nation on earth." However, participation in organized religion is dropping while belief rates remain high (2001, p. 1). Both the *National Survey of Religious Identification* (NSRI) in 1990 and the *American Religious Identification Survey* (ARIS) in 2001 found that the United States is experiencing an unprecedented change in religious practices. American adults are disaffiliating themselves from organized religions, yet 76.5 percent (159 million) of Americans identify themselves as Christian. This is a significant slide from 86.2 percent in 1990, a loss of 9.7 percentage points in 11 years. There has also been a drop in the percentage of American adults who attend religious services regularly, from 49 percent in 1991 to 36 percent in 1996. In addition, 14 percent do not follow any organized religion, almost a doubling—from only 8 percent in 1990 (ARIS, 2001). Despite this trend, 81 percent of American adults identify themselves with a specific religion (ARIS, 2001). According to the Barna Group's annual survey, more than nine out of ten American adults engage in some type of faith-related practice during a typical week (2004).

The number of 'unchurched' Americans is growing (Barna Research Group, 2005). Fuller (2001) would characterize this group of unchurched as somewhere between 38 and 40 percent of the adult population of the United States (p. 2) yet this group is comprised of diverse subgroups whose only similarity is their ambiguous relationship with organized religion. One of these subgroups has been characterized by Roof (1993, 1996) as spiritual seekers. According to Fuller (2001, p. 4) "somewhere between 9 and 19 percent of the total adult

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population in the United States are "highly active seekers, or people for whom spiritual and metaphysical concerns are a driving force". According to Fuller, It has become increasingly common for such people to describe themselves as "spiritual" rather than religious." (Fuller, 2001, p. 4).

In this work, we use the phrase religious-related belief (RRB) to be the personal, subjective dimension of religion. RRB carries connotations of a faith more personal, less dogmatic, more open to new ideas and myriad influences, and more pluralistic than the doctrinal/dogmatic faiths of mature religions. It also can connote the nature of believers' personal relationship or "connection" with their god(s) or belief-system(s), as opposed to the general relationship with a Deity as shared by all members of a given faith. However, these RRB may also be related to established religions. As such, RRB is descriptive of the intent of our research and avoids the nuanced aspects associated with the term spirituality.

Roof (1993, 1996) calls this voluntaristic construction of religious identity "pastiche" religion. Ammerman stresses the individuality, agency, complexity, and flexibility of the modern American religious landscape (1997, p. 204). American faiths have long been characterized by creativity and individualism (Adler, 2005). Roof coined the phrase "spiritual seeker" to describe those who are "spiritual but not religious" (2001, p. 5). Campbell states that there has been an increase in what she calls "personal spirituality" (2005, p.310). This personal spirituality is defined as an increase in religious belief despite a decline in religious offline participation in organized religion (see Davie, 1994). These individuals pick and choose elements from a variety of beliefs and practices as they construct an individualized spirituality. What is not answered is how these individuals do this picking and choosing.

Within this framework of "picking and choosing" and individuality, it would seem that Internet or World Wide Web (Web) could be a key tool. The Web has become a major source of information and is changing the way people conduct the daily business of their lives. Web searching has become a routine behavior for many people, with the Internet now the first choice for many people seeking information (Cole et al., 2003; Pew Internet Project, 2002). Indeed, if America is becoming a nation of individual religious seekers, then the Internet could be a core tool to support this seeking.

However, there is a notable lack of research on Internet religious searching. In 2005, Campbell sent out a call decrying the paucity of research on religion in Internet studies. The intention was to bring religion into the core of domain areas deemed appropriate for such studies: "Even though thousands of religious Websites exist and increasingly religious groups use the Internet in unique ways that alter traditional religious practices and cultural discourses, religion online has been an underdeveloped area of inquiry" (2005, p. 309). Her case was made based on four themes. First, the social and cultural construct of religion is not diminishing as was predicted. Instead, the late twentieth century saw a rise of religious fundamentalism around the world. Second, religion continues to be an important part of contemporary life and is increasingly influential in many sectors of global public and political life. Third, there is marked growth and development of religion online, as well as a marked increase in the influence of religious activity on online life. Lastly, Campbell found that the study of religious activity online offers excellent opportunities for researchers to study issues of authority, identity construction, and community (2005, p. 309–310).

In this article, we examine trends in religious and RRB searching using data samples across an eight-year period of queries from Web search engines (Excite, AltaVista, and Dogpile). We also analyze the effectiveness of religious and religious-related searches for obtaining relevant results. In this, our research is inline with and extends the work of Karaflogka (2007), who advocated the focus on the Website as the central object in the study of online religions. Given the aspect of search engines as portals to not only Website, but also blogs, listserv archives, and other Web-based information repositories, this research also provides some insight to information seeking for these other Internet aspects. To maintain clarity in our definitions, by religious we mean "connected with the public realm of membership in religious institutions, participation in formal rituals, and adherence to official denominational doctrines" (Fuller, 2001, p. 5). By RRB we mean concepts that are religious-like but may not be linked directly to an established religion. RRB inhabit the "the private realm of thought and experience" (Fuller, 2001, p. 5). In the twentieth century the concepts of religion and religiosity have parted. "As many people became disillusioned with or distanced themselves from formal religious institutions for a variety of reasons, they were able to maintain an interest in their personal metaphysical concerns, regardless of their institutional involvement or lack thereof"(Wax, 2005, p. 5).

We begin with a review of the literature, followed by the methodology utilized to obtain and analyze actual Web queries. We use these queries to examine trends in searching and term usage over time. We resubmit subsets of these queries to current major Web search engines to obtain information about the extent to which seekers are retrieving useful information. We then discuss the implications of these results for both those searching for religious and RRB information and those desiring to attract these information seekers to their organizational Websites. We conclude with the impact of our findings and with directions for future research.

Related studies

Religion and technology

Drawing from the sociological study of religion, there has been an interesting interplay between religion and technology. Technologies have often been appropriated by religious organizations to further their own goals. Perhaps the best example of this is the printing press adopted by Protestants and Catholics during the reformation. In more recent work, Sobal and Jackson-Beeck (1981) and Finnegan and Viswanath (1998) linked religiosity with newspaper technologies, demonstrating that people with regular church attendance were more likely to read the newspaper as opposed to those not attending any church. Tankard and Harris (1980) discussed the relationship between religion and television use and found that contrary to studies on magazines and newspapers the higher the use of television the less likely the viewers were to be involved in church related activities.

However, as technologies have become more closely tied to popular culture they have also been seen as more secular. Stout (2001) and Schultze (2003) characterize this complex relationship as one of "love and hate" (p. 40) in which religious organizations recognize the power of modern technologies and are tempted to appropriate them to better spread their messages, despite their strong association with the secular world. Armfield and Holbert (2003) carry this argument further by stating that modern information and communications technologies are so closely tied with popular culture and secularism strong religious affiliation will be negatively correlated to all forms of information and communication technologies. They claim that, "All forms of mass media are theorized to reflect the move toward greater

secularization, presenting a predominantly secular image of the world we live within. Subsequently, strong religious affiliation will be negatively related to all forms of mass media use because a vast majority of media content does not reflect traditional religious values" (p. 130).

However, Sturgill refutes this view by stating that American Christian churches are actively fostering information and communication use among their congregations: "Today, many books give instructions for televised ministries, televangelist has become a job title, and theological seminaries offer courses on Christian communication" (2004, p. 166). Schultze (1990, 1991, 1996, 2002; 2004, p. 166) noted that evangelicals in particular are disinterested in religious tradition, remarkably pro-technology, and "strive to popularize their culture" as "expert marketers of religion" (Schultze, 1996, p. 69). To support this claim, there have been several studies of religious groups making use of various technologies and blending them into previous belief systems. Accompanying this use of technology is also the understanding that religious belief has become further embedded within society as a personal experience that is nearly invisible (see McGuire, 1992).

The United States is, in the words of Fuller (2001, p. 1), "arguably one of the most religious nations on earth." The United States is often compared with other Westernized nations, such as those found in Europe, and found to be nearly twice as religious along some scales (Barna Research Group, 2004, 2005; Gallup and Lindsay, 1999). One of the most interesting puzzles in the sociology of religion is why Americans are so much more religious, as well as more churchly, than Europeans (Berger, 1999, p. 10). Despite having very similar economic, political, and social structures, Americans do not experience the rate of secularization as Europeans and other industrialized countries. There have been several competing explanations for this. First, the United States is permeated by an enormous array of different cultural groups, whose members may find solidarity and community in religious involvement (Herberg, 1960; Warner and Witmer, 1998). A second explanation is that when the government takes a greater role in providing social services, religion wanes, and when the government fails to provide extensive social services, religion thrives. This is demonstrated and perhaps compounded by what Chaves (2004) points out modern religious institutions are too small to accommodate the social service needs of their congregations, forcing religious leaders to make referrals to government. In addition, Collett et al. (2006) find that when seeking social services, religious seekers will seek high quality, regardless of the level of religiosity of the service provider.

A third explanation, and perhaps the most interesting in terms of the Internet, is the theory that Americans and Europeans have different histories of religious marketing over the last two centuries. Religion has a long history of state sponsorship in Europe, which need not aggressively recruit parishioners. In the United States, however, religions must support themselves and therefore are more aggressive "marketers," going to much greater lengths to attract congregants than their European counterparts (Zuckerman, 2002). In other words, American religious organizations spend a great deal of time and energy advertising, and their advertising nets results (Stark and Finke 2000). As will be seen later in this paper, the use of the Internet by religious groups has been steadily increasing. These religious groups have created a significant presence online in which many purposes may overlap with traditional views of religious advertising, such as using Webpages both to inform and recruit.

Religion and the Internet

Initial forays into researching the use of the Internet for religious purposes tended to focus the philosophical or experiential nature of the connection between religion and technology and the "trolling" for recruits by religious groups. These inquiries for the most part ignore mainstream religious activity involving the Internet. In these early years, several speculative studies concerning the nature of the relationship between information and communication technologies and religious behavior were conducted (e.g. Beaudoin, 1998; O'Leary, 1996; O'Leary and Brasher, 1996; Wertheim, 1999; Zaleski, 1997). By mainstream religion we refer to organized religious groups, which are often referred to as mature or established. They are differentiated from New Religious Movements typically by size and age, in that most of these mainstream religions have endured for several centuries in some recognizable form and have the largest number of adherents over time. Examples of these mainstream religions are Christianity, Judaism, Buddhism and Islam. Several authors examined the Internet as a spiritual space where a new religious and spiritual consciousness may be created by the "immersive experience" (Cobb, 1998, p. 10) and argued that "cyberspace offers us a new palette on which to manifest the life-enhancing values that move us toward ever greater richness of experience" (p.233, also see Bunt, 2000; Davis, 1998; Houston, 1998; Wertheim, 1999).

Along the same lines, Zaleski (1997) explored what he called a new mind–body experience created by cyberspace. These initial studies were flooded with utopian and dystopian overtones (see Brooke, 1997; Dawson, 2000; Dixon, 1997), asserting that the intersection of religion and the Internet signaled eventual salvation or doom for modern religion. Simultaneously, several ethnographic case studies that focused on highly marginalized religious groups using the Internet were published (e.g., Fernback, 2002; Kinney, 1995; O'Leary, 1996). These studies illustrated the various religious sects' making use of the Internet as a recruiting tactic.

While research on the use of the Internet for religious purposes has expanded widely to include mainstream religions, it has largely focused on the description and categorization of religious Websites. In this line of research, Dawson identified the two central questions: "What congregations are likely to be using this technology and what are they using their Websites for?" (2000, p. 26). More than 150,000 churches had a presence on the Internet in the year 2000 (Thumma, 2000). Other 'research' offered summaries of what types of religious information is disseminated on specific Websites (e.g. Baker, 1997; Bunt, 2000; Durusau, 1998; Gold, 1999; Zakar and Kaufmann, 1998). Horsfall (2000) devoted her attention to the Web-based strategies employed by various religious organizations and to how these strategies were then reflected in what content was provided.

Helland (2000) first developed the distinction between on-line religion and religion on-line. Religion on-line, is defined as that meaning that which provides a Web seeker information about a religion or congregations, and on-line religion, is defined as referring to that which invites the Web seeker to participate in religious activities on-line. In its original sense, the purpose of these congregational Websites have also become a focus in that some are seen as principally recruiting, directed at the non-member or non-believer. A second form of Website attempts to re-create a sacred atmosphere, in effect mirroring the physical church directed at both members and non-members alike (Dawson, 2000; Schroeder et al., 1998). The third form is a more utilitarian model, directed at church members and primarily used for communication and administration by the congregation (Vasquez and Marquardt, 2003). This framework has been further elaborated by Hadden and Cowan (2000), Young (2004), Cowan (2005) and then again by Helland (2005). Helland argues that the more established, mature religious organizations have adapted to the on-line environment and have changed the manner in which they allow for on-line

interaction. The issues of information provision versus religious participation, and online versus offline activity have become more complex crossing all forms of religious and on-line/offline boundaries.

Moving beyond the analysis of Websites, several researchers have attempted to capture the phenomenon of online religious behavior using large-scale survey techniques. The Barna Research Group produces the *Cyberchurch Report* annually (see Barna Research Group, 2004; Barna Research Group, 2005) which claimed that 8 percent of adults and 12 percent of teens used the Internet for religious activities. In addition, the University of Colorado's *Symbolism, Meaning and the New Media @Home* project explores religious uses of the Internet. The Pew, Internet & American Life Survey's *Cyberfaith* (Pew Internet Project, 2000) reported responses of 1309 congregations across the United States. Later, in 2004, Pew conducted a second survey and stated,

> Nearly two-thirds of online Americans use the Internet for faith-related reasons. The 64% of Internet users who perform spiritual and religious activities online represent nearly 82 million Americans. Among the most popular and important spiritually-related online activities measured in a new national survey: 38% of the nation's 128 million Internet users have sent and received email with spiritual content; 35% have sent or received online greeting cards related to religious holidays; 32% have gone online to read news accounts of religious events and affairs. 21% have sought information about how to celebrate religious holidays; 17% have looked for information about where they could attend religious services; 7% have made or responded to online prayer requests; and 7% have made donations to religious organizations or charities (Hoover et al., 2004).

Coinciding with these large-scale surveys are smaller-scale studies of religious communities, of which some part exists online (Campbell, 2003, 2004a, 2004b, 2005; Dawson and Hennebry, 1999; Fernback, 2002; Grifin, 2004; Young, 2004). In these studies, the intersection between online and offline communities are central, and the design and use of various technologies to reflect religious identities plays a central role. Perhaps the best repository for these community studies is in Dawson and Cowan's book *Religion Online* (2004).

In this prior work, we see a remarked lack of focus on the individual seeker of religious information. From a level of analysis standpoint, most research has been conducted at the societal or organizational perspective (see Walsham, 2000). However, returning to Campbell's construct of "personal spirituality" (2005, p. 310), organized religious behavior has been on the decline, and the new preponderance of religious behavior both on and offline is individual and solitary. Therefore, the individual level of analysis demands to be studied, as noted by Dawson (2000, p. 28). Specifically, Dawson (2000) states there is a need to measure: (1) Internet content (i.e., What is on the Internet? Who put it there? and For what purpose was it placed there?), (2) Internet usage profiles (i.e., How many people are using these resources? How often are people using these resources? In what ways are people using these resources?), and (3) Internet ramifications (i.e., What influence these activities are having on the religious beliefs and practices of users?). It is at this individual level that we focus our research. In the following table, we list a few examples of the research done at the societal, organizational and individual levels of analysis concerning religion and the Web. This table is not meant to be all-inclusive, but rather a representative sample of the existing online religious research. The table serves to demonstrate the relative paucity of work done at the individual level in the field, as compared with the higher levels of analysis.

It is also important to note that this table, and the research currently conducted on religion on the Web, is by no means as Christian centered as it may appear. While Christians make up about 78 percent (ARIS, 2001) of the United States, this is not the case when one examines the Web in its entirety, with Christians making up about 33% of the world population. However, the Web has also come to house religious activities of all religious inclinations. There is no reason for one to expect that the research interests of those studying on-line religious behavior to model the proportions of offline religious belief. However, to demonstrate the breadth of this field, in the table above we have included examples of research focused on on-line Christian, Pagan, Hindu, Jewish and Islamic behavior. These are meant to serve as examples, not as an exhaustive list.

In addition, much of the research in the area of religion and the Internet, probably due to their focus on Websites, has categorized the religious presence on the Internet as a broadcast medium rather than truly interactive. The Pew Internet and American Life Project (2001) states that churches are much more likely to use the Web for one-way communication features, such as posting sermons and basic information, than they are to have two-way communications features or interactive features, such as spiritual discussions, online prayer, or fundraising. For example, of the 1309 religious Websites surveyed by the Pew study, only 4 percent (52 sites) hosted discussion areas. Of those, 20 percent were considering removing the feature because, among other things, "the environment became too hard to control" (2000, p. 2).

To give credit where credit is due, the Pew studies (Pew Internet Project, 2001, 2003), despite taking place at the societal level of analysis, had significant implications for the individual religious seeker:

> The 25 percent of Internet users who have searched online for religious information parallel the profile of the American population at large. However, the intensity of religious devotion of "Religion Surfers" distinguishes them from the general population. Some 81 percent of online Religion Surfers describe their commitment to faith as "very strong," compared to only 19 percent of the population as a whole. The top uses of the Internet by Religion Surfers are simply to find information on their own faith or another one. Old-fashioned face-to-face socializing is much more appealing to Religion Surfers than tech-aided interactions with others that are related to faith. In our sample of 500 Religion Surfers, 9 percent of them had looked for religious or spiritual information via the Internet on the same day we reached them, 26 percent had gone online for such information within the past week, 29 percent had made the search within the past month, 26 percent had made the search in the past six months and 9 percent had performed the search more than six months ago (Pew Internet Project, 2001).

Word-of-mouth and marketing are the major ways that people have found a favorite religious-oriented Website. Nearly half of those who have such a site (46 percent) say they found out about it from a family member or friend or in a church publication or bulletin. Another 31 percent say they saw an advertisement for the site or found it through TV, radio, or a magazine. Just 18 percent say they found their favorite site during an online search or chanced upon it while browsing the Web (Pew Internet Project, 2001).

In addition, Bedell (2000) concluded that religious people are searching the Web, that these individuals believe religious information to be plentiful on the Web, and that religious Web users expect a great deal from this technology. However, less than 50 percent of the respondents to his survey looked online for information about religious traditions other than their own (Bedell, 2000). Bainbridge (2000)

discussed several situations in which religious Internet users turn to digital technologies to seek for a particular service (e.g., prayer, obtaining a particular piece of religious information), and Howard (2000) found that individuals often use the Internet to seek for opportunities to engage in "negotiative rhetorical techniques" (p. 242) in that the Internet facilitates communication among disparate individuals. Schement and Stephenson (1996) stated that "the development of new religious products—radio and television programming, Internet and satellite religious connections—places religion on the same plane with commercial products" (p. 269). They argued that an analogy could be made of the church as a business and the congregants as consumers shopping for a comfortable worldview. In this case, using the Internet for shopping can be seen as analogous to seeking religious information. This brings up an interesting view of religious seekers as religious consumers, which demands an exploration of the intersection of religion with the commercial interests and practices that have shaped the online environment (Clark, 2002).

Information seeking on the Web

How do people find information on the Internet, religious or otherwise? There is a growing body of literature in information science that examines how people utilize Web search engines to locate information online (Eastman and Jansen, 2003; Fox, 2002; Montgomery and Faloutsos, 2001; Spink and Jansen, 2004). This research provides insight into a framework for considering the Website viewing and search process. Jansen and Pooch (2001) present an extensive review of the Web-searching literature, reporting that Web searchers exhibit different search techniques than do searchers on other information systems. Spink et al. (2002) analyzed trends in Web searching, reporting that Web searching has remained relatively stable over time, although they noted a shift from entertainment to commercial searching. Spink and Jansen (2004) and Jansen and Spink (2005) included religious queries within a collective cultural category, reporting that these cultural queries accounted for 1.6 percent to 3.4 percent of queries analyzed.

This stream of research provides useful information and a methodology for examining Web searchers and their patterns of searching for religious and RRB information. In general, we know that Web queries are very short, usually about two terms. Users submit about one or two queries before ended their information seeking session. Searchers view less than two results pages and generally view about five actual Webpages (Jansen and Spink, 2003). However, there has been much less literature (the authors could locate none) that examines how people specifically seek religious and RRB information on the Web.

From a synthesis of the existing literature on the topic religious searching, we observe the following. First, there is little focus on the individual, with much of the analysis at the organizational and societal levels (see Table 1). Second, the majority of the research centers on the dissemination of information rather than on the consumption of online religious information. Third, we could locate no studies of how people actually search for religious information online. Although a church, organization, or individual may post religious material on a Website, we know very little about how potential customers (i.e., those interested in this information) locate it. Finally, concerning

Table 1
Studies of religion and the internet: levels of analysis.

Level of analysis	Focus	Examples	Predominant findings
Societal	American Religiosity/Religious Internet Behavior	(Barna Research Group, 2004, 2005) (Pew Internet Project, 2001) University of Colorado's *Symbolism, Meaning and the New Media @Home* project Helland (2000 and 2005 and 2007) Brasher (2001)	While Americans may be moving away from traditional organized religions, their religiosity, spirituality, and online religious behavior remains strong and growing.
Organizational	Congregational uses of the Internet	(Baker, 1997) (Cowan, 2005) (Campbell, 2003, 2004a, 2004b, 2005) (Dawson and Hennebry, 1999) (Dawson and Cowan, 2004) (Dawson, 2000, 2001) (Durusau, 1998) (Fernback, 2002) (Gold, 1999) (Grifin, 2004) (Hadden and Cowan, 2000) (Horsfall, 2000) (Jacobs, 2007) (Lovheim, 2004) (MacWilliams, 2004) (Scheifinger, 2008) (Schroeder, et al., 1998) (Thumma, 2000) (Young, 2004) (Zakar and Kaufmann, 1998)	Congregational Websites and religious organizations using the Internet have been the focus of these studies and typically categorized into two forms, religion on-line and on-line religion, as well as by use. The authors listed here have typically conducted ethnographies or Website analysis with a focus on distribution on content.
Individual	Religious Web searching/ posting/blogging	(Armfield and Holbert, 2003) (Bainbridge, 2000) (Bedell, 2000) (Howard, 2000)	The beliefs and opinions of online religious people concerning the future of faith based on survey data. These studies also examined the correlation between the amount of religiosity a person possessed and its relationship to use the Internet. Finally, they also have examined why people use the Internet.

primarily survey data on religious searching, there appears to be no published information on how successful the searches for religious information are. We do not know if religious searchers are actually locating the information that they desire or if religious organizations that desire to publish this information or services online are effectively utilizing the Web as a resource in their efforts. There seems to be an implicit belief that once a searcher "goes online," he or she unquestionably locates the desired information. Obviously, this is not so.

In other words, there is a dearth of research at the individual level. We address this shortcoming in the present study by examining samples of religious and RRB searches on major Web search engines. Specifically, we seek to investigate religious and RRB information searching on the Web. We analyze how people searched for this information, what specifically they search for, and the effectiveness of these searches.

In the following sections, we first present our research questions. We then describe our research design and our analysis of the search engine data. We investigate the information needs of the religious and RRB information searchers and examine how these information needs are translated into queries that are submitted to Web search engines. Next, we analyze the effectiveness of these searches in obtaining relevant results. We then present our results, along with a discussion of the key findings and the implications of our research results for seekers and providers of online religious information. We conclude with directions for future research.

Research questions

The specific research questions driving this research are:

How predominant is religious or RRB searching?

For this research question, we investigate the number of sessions (i.e., a search episode) and queries submitted to Web search engines to determine the percentage of search engine users relative to the complete data sample that are seeking religious or RRB information.

How do people interact with Web search engines when searching for religious information?

For this research question, we analysis the interactions (i.e., query submissions, term usage) of Web search engine users as they search for religious or RRB information in order to shed light on the searching tactics employed by these searchers. We compare these tactics to the larger Web population. As (Barrett and Lanmana, 2008) have pointed out, religious concepts share characteristics with other cognitive concepts. Therefore, the expression of these religious information needs should manifest themselves in similar ways.

How effective are these interactions in locating relevant information?

In order to determine effectiveness, we submit a portion of religious or RRB queries to major search engines, retrieve the results, and qualitatively rate these results for relevance to the religious or RRB topics specified by the queries.

Research design

Data collection

We collected the data in this study at five time periods from three Web search engine. Three of the transaction logs are from Excite (http://www.excite.com), a major Web search engine during the time of the data collection. These three transaction logs span several hours of user searching on the following dates: 16 September 1997 (Tuesday, midnight to 8 a.m.), 1 December 1999 (Wednesday, 9 a.m. to 1 p.m.), and 30 April 2001 (Monday, midnight to midnight). Excite was the second most popular Website in 1997 (Munarriz, 1997) and was the fifth most popular in 1999 and 2001 as measured by number of unique visitors (Cyber Atlas, 1999, 2001). In 2002, Excite changed its business model from a search engine to an information portal.

The fourth transaction log is from the AltaVista search engine. The information in the transaction log was collected on 8 September 2002 and spans a 24-h period. The queries recorded in the transaction log represent a portion of the searches executed on the Web search engine on this particular date. At the time of the data collection, AltaVista was the ninth most popular search engine on the Web (CyberAtlas, 2002).[1]

The fifth transaction log is from Dogpile, collected on 6 May 2005, also spanning a 24-h period. The transaction log represents a portion of the searches executed on that day. According to Hit Wise (Hitwise, 2005), Dogpile.com was the ninth most popular Web search engine in 2005 as measured by number of site visits. Google has not provided access to data for academic study.

Each of the transaction logs holds a large and varied set of queries (over one million records each). Naturally, non-US searchers could access these search engines; however, it is reasonable to believe that most of these searches are from the US given that these are US-based search engines (c.f., Jansen et al., 2006).

Data preparation

The queries from each search engine were recorded in separate transaction logs and represent a portion of the searches executed on the Web search engine on the particular dates.

Each record within the transaction logs contains three fields:

(1) *Time of day*: measured in hours, minutes, and seconds from midnight of each day as logged by the Web server;

[1] These search logs are available to researchers in the community by contacting the lead author.

(2) *User identification*: an anonymous user code assigned by the Excite, AltaVista, and Dogpile servers. The server software derives this code using the Internet Protocol (IP) address of the searcher's machine. The code is unique and persistent during the each data collection period.
(3) *Query terms*: terms exactly as entered by the given user.

Using these three fields, we could locate the initial query and recreate the chronological series of actions in a session. Table 2 presents the number of sessions and number of queries from each of the five transaction logs.

We define our terminology similar to that used in other Web transaction log studies (Jansen and Pooch, 2001; Park et al., 2005).

- *Query:* string of terms submitted by a searcher in a given interaction
  - *Initial query:* first query submitted in a session by a given user.
  - *Identical query:* a query within a session that is a copy of a previous query within that session.
  - *Query length:* the number of terms in the query.
- *Session:* series of queries submitted by a user (as defined by a unique user identification) during one interaction with the Web search engine.
  - *Session length*: the number of queries submitted by a searcher during a defined period of interaction with the search engine.

Data analysis

From the five complete transaction logs, we were interested in only those queries that were religious or religious-related. We therefore culled a subset of queries pertaining to religion or RRB using a modified snowball sampling technique (e.g., Patton, 1990). More specifically, we started with several seed terms that are central indicators of religious searching (i.e., *bible*, *islam*, *catholic*, *jewish, hindu*, *etc.*) based on a major religious Website (www.beliefnet.com) or RRBs (i.e., *peace*, *faith*, *hope*, *love*, *etc.*). We refer to RRB as a religious-like belief not tied specifically to an established religion. Using this set of terms, we extracted all records from the transaction log that contained these terms. We then reviewed the extracted records identifying other terms that frequently appeared. These new terms were then combined with the set of original terms, and from the original transaction logs we extracted all records that contained these terms. The process was repeated until the addition of new terms to the set added less than ten new queries. We employed the same process on the other four transaction logs.

We then qualitatively analyzed the retrieved subset to identify queries that were obviously not religious-related. For example, the query *car bible* refers to a book about cars, not the religious text. The obviously unrelated queries were removed from the retrieved sets. At this point, we were satisfied that we had retrieved a subset of each of the transaction logs that contained solely to religious or RRB searches. This set of data was used to address our three research questions.

To address the first and second research question, we used our resulting data sets of religious and RRB queries in order to analysis sessions, queries, and terms, and pages of results viewed. Using the time stamp field and user identification codes, we located the initial query and recreated the chronological series of actions in a session.

For the third research question, we randomly selected 105 queries from one of the transaction log. Using an automated application, we submitted each of the 105 queries to four major Web search engines, namely America Online (AOL), Google, Microsoft Network (MSN), and Yahoo!, and then retrieved and stored the returned results listings. We choose these four search engines because they are the most popular Web-searching sites as measured by number of unique visitors, and combined they have one of the largest document collections used by any Web search engine (Nielsen/Netrating, 2005).

After each query was submitted, the Website addresses for each of the top ten results were saved. We chose ten results because reported statistics show that approximately 80 percent of Web users never view more than the top ten or so documents (Jansen et al., 1998; Silverstein et al., 1999; Spink et al., 2002). If a query retrieved fewer than 10 results, then that number of results was utilized.

Three independent raters reviewed the nearly 1050 Web documents, assigning a three-scale relevance judgment of 2 (for relevant), 1 (for somewhat relevant) or 0 (for not relevant) based on the rater's interpretation of the query. This association of determining document relevance to terms within a query is known as the topical relevance measure. Topical relevance is a standard measure utilized in information retrieval to evaluate the effectiveness of a query based on the documents retrieved (Saracevic, 1975).

The reviewers received training regarding the topical relevance judgment process and were given instructions for determining relevance. If the evaluators could make a determination from the results listing, they did so. If they could not, then they visited the Webpage pointed to by the result's uniform resource locator (URL). We calculated agreement across the three raters using Cronbach's Alpha, and we found it to be quite high (0.81), especially given the subjective nature of relevant information.

From these relevance rankings, we were able to calculate relative precision (i.e., the ratio of the number of relevant documents retrieved to the number of documents retrieved at a certain point in the results listing). If a document received an average topical relevance score of greater than 1.5, we classified that document as relevant. If a document received an average score of 1.5 or less, we deemed that document to be non-relevant.

Results

In the following sections, we report the results of our analysis.

Table 2
Sessions and queries 1997, 1999, 2001, 2002, and 2005 data sets.

	1997	1999	2001	2002	2005
Sessions	211,063	325,711	262,025	369,350	534,507
Queries	1,025,908	1,025,910	1,025,910	1,073,388	1,523,793

Table 3
Religious sessions and queries from 1997, 1999, 2001, 2002 and 2005 data sets.

	1997	1999	2001	2002	2005
Sessions	2116	2952	2840	5525	6629
% Of all sessions	1.0%	0.9%	1.1%	1.5%	1.2%
Queries	6544	7160	8188	13,750	15,365
% Of all queries	0.6%	0.7%	0.8%	1.3%	1.0%

Religious and RRB Searching Results

Returning to our first research question (*How predominant is religious or RRB searching*?), we examined what percentage of the transaction logs were religious or RRB sessions and queries. We present the results in Table 3.

Examining trends in the analysis results, we see that religious and RRB searching make up about 1 percent to 1.5 percent of the searching sessions, and this percentage has remained constant with this range over the five sampling periods. We see a wider range in queries submitted, ranging from 0.6 percent to 1.3 percent of all queries. A chi square test shows no significant difference in percentage of session or queries among the data sets. Using sessions as a surrogate for people, it would appear that a constant proportion of people are searching for religious or RRB information, but this sub-set of the Web population is trending, albeit slowly, to be more interactive and engaged in this information searching domain, as evidenced by the increased number of queries. This trend of little change in Web-searching tracks with trends in the general Web population (Jansen and Spink, 2005). Although approximately 1 percent for religion searching may seem like a small number, this percentage tracks favorably with categories of Web searching, outside of ecommerce, entertainment, and general purpose searching (Jansen and Spink, 2005).

We now move to our second research question (How do people interact with Web search engines when searching for religious information?).

Aggregate statistics

Table 4 presents an overview of religious and RRB searching across the five data collection periods.

From Table 4, first examining session length, we see that between 61 percent and 76 percent of searchers for religious information submitted one or two queries per session. This tracks with that in the general Web population (approximately 50 percent) (Jansen and Spink, 2005). The use of Boolean operators, an indication of searcher sophistication, ranges from 5 percent to 9 percent, again tracking with the general Web population (Spink et al., 2002).

With regard to term usage (unique terms, terms not repeated in data set, and use of 100 most frequently occurring terms), the percentages are not in line with that from the general Web population. However, this is to be expected as the religious and RRB domains have a much tighter jargon than the entire span of possible human communication. Therefore, this deviation is not surprising.

What is surprising is the query length. The average number of terms for religious queries ranges from 3.1 to 3.8 terms per query. The average query length for the general Web population ranges from 2.4 to 2.6 (Spink et al., 2002). As a rule, the more terms in the query, the more descriptive the expression of the information need and usually indicative of more complex searching domains.

Queries

What types of religious information are people searching for? Tables 5–7 present the top queries from the five data sets.

From Tables 5–7, two themes are apparent. First, the top queries represent a small portion of the total of all religious and RRB queries. Most of these top queries represent less than 1 percent of total queries. Therefore, the range of information need expressed in the religious domain is quite diverse. Second, the top queries almost exclusively represent expressions concerning mainstream religions, with possible

Table 4
Searching trends from 1997, 1999, 2001, 2002, and 2005 data sets.

	1997	1999	2001	2002	2005
Sessions	2116	2952	2840	5525	6629
Queries	6544	7160	8188	13,750	15,365
Terms					
Unique	2859 (14%)	5929 (26%)	3745 (14%)	14,082 (28%)	8079 (14%)
Total	20,374 (100%)	23,059 (100%)	27,564 (100%)	50,128 (100%)	56,543 (100%)
Mean terms per query	3.11	3.22	3.37	3.65	3.68
Terms per query					
1 term	872 (13%)	883 (12%)	769 (9%)	1073 (8%)	1069 (7%)
2 terms	1962 (30%)	2124 (30%)	2190 (27%)	3332 (24%)	3212 (21%)
3+ terms	3710 (57%)	4153 (58%)	5229 (64%)	9,345 (68%)	11084 (72%)
Mean queries per user	3.09	2.43	2.88	2.49	2.32
Users modifying queries	1224 (58%)	1420 (48%)	1427 (50%)	2747 (50%)	3390 (51%)
Session length					
1 query	892 (42%)	1,532 (52%)	1,413 (50%)	2778 (50%)	3239 (49%)
2 queries	437 (21%)	604 (20%)	550 (19%)	1436 (26%)	1741 (26%)
3+ queries	787 (37%)	816 (28%)	877 (31%)	1326 (24%)	1649 (24%)
Boolean queries	318 (5%)	491 (7%)	833 (10%)	1,053 (8%)	606 (4%)
Terms not repeated in data set	1098 (5%)	1420 (6%)	1546 (6%)	4720 (9%)	3509 (6%)
Use of 100 most frequently occurring terms	10,461 (51%)	11,212 (49%)	13,752 (50%)	23,101 (46%)	26,302 (47%)

Table 5
Top 10 queries from 1997 and 1999 data sets.

1997 Top 10 religious queries			1999 Top 10 religious queries		
Query	Frequency	%	Query	Frequency	%
Bible	179	2.7	Bible	82	1.1
Christian	65	1.0	Christian	77	1.1
Jewish	52	0.8	Kwanzaa	37	0.5
Islam	44	0.7	Religion	31	0.4
Religion	44	0.7	Ramadan	28	0.4
Buddhism	31	0.5	Jesus	28	0.4
Saints	25	0.4	King James bible	20	0.3
Prayer	23	0.4	Islam	20	0.3
Catholic	23	0.4	Catholic	19	0.3
Jesus	21	0.3	God	16	0.2

Note: dates of data collection were: 1997 – 16 September; 1999 – 1 December; 2001 – 30 April; 2002 – 8 September; 2005 – 6 May.

one exception: the query "pagan religions" in the 2001 data set, which was 0.4 percent of queries. This data suggest that mainstream religious adherents engage in online religious seeking, and the online religious seeking is not the exclusive domain of New Religious Movements. By New Religious Movements (NRM), we refer to a religious faith, RRB or philosophical movement of relative recent origin that is not part of a traditionally established denomination, church, or religious body. This finding supports Helland's (2005) claim that mature, established, mainstream religious organizations have adapted to the online environment and have changed the manner in which they allow for online interaction. Both Young (2004) and Helland (2005) demonstrate the increasingly predominant role these mainstream religious activities are taking online.

Terms

Terms are the building blocks of queries, representing, to some degree, the basic information need of the searcher. The distribution of term usage within a large set of queries generally follows a Zipf distribution (Jansen et al., 2000), with a relatively small set of terms used quite frequently and a large set of terms used relatively infrequently. For the complete transaction logs, the set of the 100 most frequently utilized terms represented 18 percent to 22 percent of the total term usage. However, for the religious and RRB-related queries, the 100 most frequently used terms accounted for 46 percent to 51 percent of the total terms. The percentage of terms used only once was quite low, relative to the general Web population. Importantly, there is a very tight jargon used for religious and RRB searching, which implies that there are common information needs across users with these information needs. Armed with this information, organizations can design their Websites to include these terms in order to maximize the likelihood of having their site returned in the results list during a religious or RRBly related search.

Table 8 shows the most frequently occurring terms from each of the datasets.

To arrive at this list, we first sorted all terms within the data set in descending order by frequency of term occurrence. From the list of highest ranked terms, we then removed the terms without information content (e.g. *and*, *or*, *is*, *the*), known as stop words (Salton and McGill, 1983). We then selected the terms with a frequently of greater than 100 from each of the five datasets. These were merged into one list, resulting in a total of 25 unique terms, as presented in the first column of Table 8.

The most frequently occurring terms for all five time periods were *Christian*, *Bible*, and *Church*, with the frequency of occurrence holding fairly steady. The core set of high-use terms was fairly stable. Of the 18 terms appearing in 1997, 14 also appeared on the 2001 list. There were also some interesting new omissions in the top term lists over the five-year period. We were surprised that *islam* or *muslim* was not top terms the later years (see Table 8).

Effectiveness

We now move to research question number three (*How effective are these interactions in locating relevant information?*). This portion of the study involved using a random subset of queries from the 2002 data set, submitting them to four popular Web search engines, and having three independent raters evaluate the results to determine relevance. This analysis helps address the question of whether religious-related search sessions are short because the searchers are finding the information that they need or because they are not finding the information that they need and just giving up or going elsewhere.

Table 6
Top 10 queries from 2001 and 2002 data sets.

2001 Top 10 religious queries			2002 Top 10 religious queries		
Query	Frequency	%	Query	Frequency	%
God	63	0.8	Bible	48	0.3
Bible	53	0.6	Jesus	40	0.3
Palms Sunday	45	0.5	Islam	30	0.2
Christian	39	0.5	Religion	26	0.2
Pagan religions	30	0.4	Buddhism	24	0.2
Islam	29	0.4	Church	22	0.2
Buddhism	29	0.4	Bible study	20	0.1
Jesus	25	0.3	Catholic	20	0.1
Ten commandments	25	0.3	God	19	0.1
Jewish	21	0.3	Online bible	19	0.1

Note: dates of data collection were: 1997 – 16 September; 1999 – 1 December; 2001 – 30 April; 2002 – 8 September; 2005 – 6 May.

Table 7
Top 10 queries from 2005 data set.

2005 Top 10 religious queries		
Query	Frequency	%
Catholic churches	156	1.0
Churches	140	0.9
Church	138	0.9
Greek gods	50	0.3
Jesus	45	0.3
God	36	0.2
Roman catholic church	36	0.2
Churches directory	30	0.2
Catholic church directory	28	0.2
Catholic church	28	0.2

Note: dates of data collection were: 1997 – 16 September; 1999 – 1 December; 2001 – 30 April; 2002 – 8 September; 2005 – 6 May.

Relevance data is the key measure for determining relative precision, which is a standard metric to evaluate information system performance (Korfhage, 1997). Relative precision is defined as the ratio of the number of relevant documents retrieved to the total number of documents retrieved at a certain position in a results listing. For example, if one relevant document was retrieved out of ten, with the other nine being not relevant, precision would be 0.01 (i.e., 0.01 = 1 relevant/10 retrieved). This specific metric is referred to as P@10 (i.e., precision at 10). The relevance evaluations from the three raters were averaged to create one measure of relevance, which was used to calculate relative precision for the queries. Of the 969 documents retrieved within the top ten results, there were 506 (52 percent) results that were judged to be relevant and 434 (48 percent) were judged to be non-relevant. Thus, the relative precision for the entire set of results is 0.52, meaning that on average just over half of the obtained results were relevant. The results of the relevance analysis are displayed in Table 9.

We see from Table 9 that the percentage of relevant documents was 57 percent on both AOL and Google, 46 percent on MSN, and 24 percent on Yahoo! Directory. The total average percentage is lower than reported in other evaluation of Web search engines. Eastman and Jansen (2003) report an average percentage of relevant documents at approximately 70 percent. So, it appears that Web search engines are not servicing the religious domain effectively as general Web searches.

Discussion

We now discuss the implications of our research. First, according to the literature, while the American religious landscape is more religious than the rest of the Western world, the religious landscape within the United States has been described as increasingly secularized and factionalized. However, our data do not support these claims. There is no evidence of secularization from looking at religious Web searching behaviors. Religious and RRB interest is holding steady. Religious and RRB searching remained constant over the five sampling periods, making up about 1 percent to 1.5 percent of all searching sessions.

Table 8
Top ten most frequently occurring terms from 1997, 1999, 2001, and 2002 data sets.

1997 Top 10 religious terms			1999 Top 10 religious terms		2001 Top 10 religious terms		2002 Top 10 religious terms		2005 Top 10 religious terms	
Term	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Christian	**893**	**4.40**	**845**	**3.70**	**986**	**3.60**	1753	3.50	1474	5.60
Bible	819	4.00	602	2.60	612	2.20	1282	2.60	840	3.20
Church	626	3.10	805	3.50	930	3.40	**1880**	**3.80**	**3392**	**12.90**
Religion	324	1.60	166	0.70	271	1.00	425	0.80	348	1.30
Saint	283	1.40	338	1.50	451	1.60	451	0.90	542	2.10
Churches	250	1.20	179	0.80	164	0.60	258	0.50	748	2.80
Baptist	241	1.20	268	1.20	230	0.80	506	1.00	662	2.50
Catholic	235	1.20	362	1.60	364	1.30	732	1.50	964	3.70
Jewish	234	1.10	216	0.90	252	0.90	276	0.60	273	1.00
Christ	182	0.90	196	0.80	145	0.50	292	0.60	297	1.10
God	165	0.80	234	1.00	402	1.50	727	1.50	932	3.50
Jesus	153	0.80	310	1.30	325	1.20	478	1.00	509	1.90
Christianity	148	0.70	–	–	–	–	–	–	–	–
Gods	146	0.70	–	–	138	0.50	191	0.40	309	1.20
Music	136	0.70	105	0.50	–	–	258	0.50	–	–
Holy	122	0.60	156	0.70	165	0.60	–	–	339	1.30
Islam	107	0.50	–	–	–	–	–	–	–	–
Religious	106	0.50	131	0.60	251	0.90	260	0.50	–	–
Greek	–	–	105	0.50	–	–	–	–	311	1.20
Islamic	–	–	103	0.40	–	–	–	–	–	–
Methodist	–	–	–	–	–	–	–	–	346	1.30
Music	–	–	–	–	122	0.40	–	–	–	–
Prayer	–	–	–	–	–	–	336	0.70	278	1.10
School	–	–	–	–	158	0.60	187	0.40	–	–
Temple	–	–	100	0.40	141	0.50	232	0.50	279	1.10

Note: dates of data collection were: 1997 – 16 September; 1999 – 1 December; 2001 – 30 April; 2002 – 8 September; 2005 – 6 May.

Table 9
Relevance of religious queries on four popular web search engines.

	AOL		Google		MSN		Yahoo! Directory	
Relevant	596	57%	599	57%	486	46%	251	24%
Not relevant	416	40%	406	39%	500	48%	178	17%
Sub-total	1012	96%	1005	96%	986	94%	429	41%
No result	38	4%	45	4%	64	6%	621	59%
Total	1050	100%	1050	100%	1050	100%	1050	100%

Second, of those seeking religious and RRB information on the Web, we note that they are becoming slightly more active in their searching. While the number of people searching has remained constant, the percentage of religious queries they have made has increased from 0.6 percent to 1.3 percent of all queries. This may be because of the relatively (to general Web searching) low precision of Web search engine results in response to Web religion and RRB queries. This low effectiveness may contribute to behavior noted by Pew surveys (Pew Internet Project, 2001) of "word of mouth" being the most common method of locating online religious Websites. This "word of mouth" is counter to prior work on Web searching that has noted search engines are the most common method of locating Websites (Nielsen/Netrating, 2005).

Third, we find no evidence for a move from religious to personal RRBity, as predicted by Fuller (2001), since the majority of the search terms can also be associated with established, traditional, mainstream, offline religions. While there may be an argument for a growing percentage of "unchurched"—religious or RRB people seeking either a church or RRB experience—the terms that they use reflect their interest in the local, the traditional, and the mainstream. As a matter of fact, because of the similarity in the search terms used, we see the seekers as more similar to one, rather than a move toward individuality. We believe that much of this seeking behavior is focused locally, meaning individuals are seeking information about local churches, locations, hours, services, etc. Certainly, though, we do not claim that mainstream religious organization comprise all the online religious seeking. It could also be that personal RRB searchers are using mainstream religious terms.

Fourth, some prior published work that postulated that traditional religious affiliation would be associated with lower adoption or sophistication with technology. Our data does not support this assertion. The searching sophistication of Web searches for religious information appears in line with the Web tactics of the general Web searching population. Based on standard metrics of analysis of session length, query length, and use of query operators, the measures from our sample of religious Web searchers is in line with general Web users. In fact, based on the longer queries, one could make the argument that religious searchers are more expressive of their information needs than the typical Web searcher. However, as we point out, this may be due to the lower overall relevance of the search engine results.

Finally, we anticipated an increase in the use of the terms relating to Islam since 2001, but have found no evidence of that, suggesting that people are not seeking to learn about other religions but are instead seeking information about their own religion, or religions similar to their own.

Conclusion

With Web being increasingly important in all aspect of daily life, there is a critical need to understand how people utilize Web search engines with regards to religious and RRB information needs. The growing body of research in online religious and RRB practices, of which online searching is a portion, is indicative of the increased affect that the Web is having on all aspects of our lives. In this research, we analyzed five data sets of over million queries each in order to investigate religious and RRB searching on Web, which focused primarily on US searchers. We could find no comparable research of online religious searching of this scale. We focused on the predominance of religious searching online, how and what these users were searching for, and the effectiveness of these searches.

Through this research we have learned four key things about how American Internet users seek religious information using the Web. First, religious and RRB interest is a persistent topic of Web searching. Given the consistent growth of the number of Web users, the number of religious seekers has grown in proportion. Second, these religious seekers have become slightly more sophisticated and interactive in their searching demonstrating a level of comfort with searching technologies. Third, most religious seekers sought information associated with established, traditional, mainstream, and offline religions supporting the religious status quo, rather than challenging it. Fourth, seekers of religious information are as sophisticated in their use of computer, Internet and search technologies as the rest of the American population, discrediting the notion that traditional religious affiliation is associated with lower adoption of technologies. These factors point to the Web as a potentially usefully communication medium for a variety of religious organizations.

A limitation of our research is that we focus only on Web search engines as entry points. Religious searchers may be bypassing search engines and going directly to religious portal and other Websites, sharing the location of such Websites via word of mouth (Pew Internet Project, 2001). This aspect of browsing (Bodoff, 2004) is an acknowledged method for information searching, but it was outside the scope of our data sets, unfortunately. This is currently an area for future research. As pointed out by Krüger (2005), we acknowledge the limitations of a single methodology technique when investigating religious activity on the Web.

Some prior work (Dawson and Cowan, 2004; Dawson, 2005; O'Leary, 1996) pointed out that the decentralized nature of the Internet should make it an inviting and comfortable environment for non-mainstream religions. Given that these religious sects may be much smaller in term of membership compared to the established mainstream religious, their searches will naturally comprise a smaller percentage of overall searches relative to searches by members of the mainstream religions. How their use of the Internet may be proportionally higher based on the size of their membership would be another interesting area for future research. Also, our use of seed terms of beliefnet.org may have introduced a bias toward the more established religions.

Other areas of research include inquiry into online religious discussion sites, blogs, and emerging social media sites (i.e., Facebook, Twitter, LinkedIn, etc.). As reported, a limited number of religious Websites host discussion areas and many were considering removing this feature because the discussion was difficult to control (Pew Internet Project, 2000). The general concept in community of practices is that one does not "control" the conversation from any hierarchical standpoint. Instead, the "community" will self-correct after a point of exploration. It would be interesting to see if this norm holds in religious discussion boards.

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Dr. Andrea H. Tapia has decided to become a traveler. Just as a traveler leaves her home and moves between countries and cultures. I have left my sociological home behind and have made my way to other academic spaces. After taking my first tentative steps outside sociology I learned that I had been gifted with powerful tools that were portable, knowledge and skills in social research methodology and social theory that were applicable to a myriad of focal, topical areas of study. Successful travelers also possess dynamic cultural flexibility in which they learn new languages and cultural behaviors applicable to their current location and assimilate elements of each into their own core value system. I expected to travel to far off academic lands and assimilate as best I could into a new discipline, however, what I found was inter-disciplinarity and many more travelers like myself. There are quite a lot of us living between the disciplines. I see myself as an academic with expertise in social research methods and social theory, who applies that to the study of information and communication technologies (ICT) and their context of development, implementation and use. People like me are to be found in business schools, information schools, library schools, communication schools, and multitudes of smaller programs such as science and technology studies. Some of us have accepted labels as social informaticians or socio-technical theorists, but this does not completely capture the range. I have found a home in the College of IST because of its central belief in inter-disciplinarity. I am unique to IST because of the sociological tools I bring to the table and my central focus on groups and institutions relative to their take up, uses and issues with ICT.

Amanda Spink is Professor in the Faculty of Information Technology at the Queensland University of Technology and Co-Leader of the Information Sciences Cluster. Her primary research interests include: basic, applied, industry and interdisciplinary studies in information science, including evolutionary and developmental theories, models and experiments related to information behaviour; cognitive information retrieval, Web retrieval, including relevance, feedback and multitasking models. Professor Amanda Spink has published over 320 journal articles, refereed conference papers and book chapters and 6 books. She is a member of the numerous journal editorial boards including: Information Processing & Management, Journal of Documentation, Information Sciences, Journal of Information Systems Education and Webology.