

## **Social, religious information behavior: An analysis of Yahoo! Answers queries about belief**

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### **ABSTRACT**

In this paper, we investigate religious information behavior by laypeople related to Christian religious belief, through a content analysis of questions posted to the social media Q&A site Yahoo! Answers. The emergent taxonomy of questions is similar to that developed to characterize Yahoo! Answers posts focusing on eating disorders—indicating commonalities of motivation and in the socio-emotional aspects of participation in Yahoo! Answers across topic boundaries. Regarding religious information seeking, the questions are particularly interesting in that they provide insight into non-factual information needs: for example, they illuminate the desire to understand another person’s understanding of religion (rather than to hear an authoritative statement of the tenets of a faith), and to communicate with others to develop an understanding of one’s own religious beliefs.

### **1. INTRODUCTION**

We chose the concept of ‘belief’ as the focus for our investigation of religious information-seeking behavior. This concept was selected because it is central to Christian ideology, whereas other concepts such as tithing, religious laws, etc. are more specific to practice. We previously examined queries pertaining to both Islam and Christianity with the goal of comparing the focus and purpose of the questions across the two faith systems (Cunningham

& Hinze, 2014). In this article, we focus in more detail on questions about Christian belief. As in our earlier study, we base this study on questions posted to *Yahoo! Answers*, as this forum allows us to access a formerly invisible category of religious information-seeking behavior: questions from laypeople directed to other laypeople, rather than to authoritative resources or clergy.

This paper is organized as follows: Section 2 explores previous research on posts to social media Q&A sites and specifically research aimed at identifying commonalities in questions that can be leveraged to enhance digital library functionality or to build models of Q&A post behavior; Section 3 describes our data collection of 200 *Yahoo! Answers* questions regarding ‘Christianity and belief’, and discusses our analysis methodology; Section 4 presents our categorization of ‘belief’ questions and provides examples of posts fitting each category; Section 5 discusses the social and emotional aspects of our categorization; and Section 6 presents our conclusions.

## **2. PREVIOUS WORK**

Existing research characterizing posts to *Yahoo! Answers* and other social Q&A sites has been put to two uses: to enhance the user experience in an information system, and to develop a model of posts and posting behavior in order to better understand social information seeking practices.

### **2.1 Enhancing Social Information Systems**

For this approach, previous work largely centered on the analysis of a specific type of query within a domain in order to suggest search and browsing functionality or information organization for a digital library – where the resulting digital library is intended to enable users

to answer those questions directly without having to resort to a social media Q&A system. Examples of this type of Q&A site question analysis include examinations of posts asking for recipes (Cunningham and Bainbridge, 2013), assistance in identifying or locating images (Cunningham and Masoodian, 2006), and requests for help in finding songs and other music information / documents (Lee et al., 2005).

Mamykina et al. (2011) analyzed the design of the online Q&A system *StackOverflow*, which provides very fast answers for technical questions posted by programmers (92% of the questions are answered in a mean time of 11 minutes). They believe that the success of the system is not merely due to its technical design, but also to the close involvement of a design team that is embedded within the user group, and to system incentives that promote the desired user behavior.

Questions analyzed for the above areas—seeking advice for recipes, information on songs and images, and technical issues – are largely predicated on the idea of seeking an authoritative or definitive answer to the question. While some questions surrounding religious belief afford a generally accepted factual response (and indeed, examples of such questions can be found in Section 3), the subjective nature of the experience of religious beliefs makes it difficult to capture queries to a standard digital library.

## **2.2 Modeling social information-seeking practice**

Adamic et al. (2008) conducted a large-scale analysis of user behavior on *Yahoo! Answers* in general. They noted the wide range of topics covered, but in doing so observed that answers did not necessarily show “very deep” knowledge. They observed that topics relating to religion are characterized by discussion, and that many users tended to contribute both questions

and answers to this topic. Similarly, Harper et al. (2009) rated *Yahoo! Answers* topics in Religion and Spirituality as 100% conversational.

Harper et al. (2009) distinguish between informational questions (posed in the hopes of eliciting answers in the form of facts or advice), and conversational questions (worded so as to initiate a discussion, to solicit opinions, or perhaps as an act of self-presentation by the poster). Their experimental results indicated that while there can be overlap of these two categories within a single post, on the whole the two categories are reasonably well-defined and can be reliably differentiated by both human categorizers and machine-learning algorithms.

Bowler et al. (2012) explored the social conversations of teenagers on *Yahoo! Answers* about eating disorders. They classified the types of conversations into five categories: seeking information, emotional support, communication, self-expression, and help to complete a task. This categorization provided the starting point for the present paper's analysis of religious questions (Section 3.2). They observed that many questions posted fell into the category of "noise," expressing random thought. When reading those conversations closely, they realized that this was the form teenagers used to express their worries, angst and sense of alienation. For them this seemed to indicate the absence of alternative avenues for expressing these concerns.

The same team used *Yahoo! Answers* to analyze how people express their information needs in natural language, again focusing on the topic of eating disorders (Oh et al., 2013). They analyzed both socio-emotional questions and informational questions, and found that these two types of questions were fundamentally different, possibly suggesting different underlying information needs. Socio-emotional questions were often phrased in terms of personal narratives including references to past experiences and emotion. They hypothesized that the users' motivation for asking these questions might be their personal journey through an eating disorder.

On the other hand, informational questions were often complex, precise and objective, possibly reflecting the users' interests in the area of eating disorders.

Robillard et al. (2013) explored public attitudes towards gene therapy through the lens of 903 questions posted to *Yahoo! Answers* from 2006 to 2010. They uncovered a set of themes characterizing the gene therapy issues raised in the posts: ethics, environment, economics, law, and society. The ethics-related questions are perhaps most interesting from the point of view of understanding public opinion, in that many of these posts express fear or concern about the potential impact of gene therapy on society as well as individuals. The authors note that questions to *Yahoo! Answers* and similar social media Q&A sites provide a valuable insight into public reaction to and interpretation of medical breakthroughs as reported in news media – and that this sort of question analysis could support insights into public awareness and attitudes complementary to those elicited by more conventional surveys and focus groups.

While these earlier studies focus on questions regarding different domains and approach the characterization of questions with different goals, the common finding is that social media posters often seek more than, or sometimes other than, a factual answer. Social media Q&A is a complex, often contradictory, process that can engage question posers and question answerers in a 'conversation' that often involves emotion, affect, communication, and miscommunication.

### **3. METHODOLOGY**

We base our study on posts to *Yahoo! Answers* because it is a relatively stable and widely used social media Q&A site – that is, a knowledge-exchange community in which users can post questions and write answers to other users' questions. It is a place where users can seek advice, share personal stories, and find information. *Yahoo! Answers* has existed in roughly the same

form since 2006, when its predecessor Ask Yahoo! was discontinued. It is one of the largest Q&A sites in the world and covers an extensive set of topics; as of 2009 it claimed about 200 million users worldwide (Yanswers.blog, 2009). Question posters self-categorize their submissions in a fixed taxonomy of interests. Question answerers can identify posts of interest by searching directly or by browsing the classification scheme (Kucuktunc et al., 2012).

### 3.1 Data collection

The questions were sampled in April 2014 from those queries marked as “answered”, as retrieved by a search on the *Yahoo! Answers* Society & Culture > Religion category. The search employed was “Christian belief”; we sampled questions and eliminated duplicates, mis-categorized questions, and responses including the search terms in the answer (rather than the question + title proper) until we had identified 200 questions.

The search results were sorted by relevancy, with the date of posting for sampled questions ranging from within a month of the data gathering period to five years prior to data gathering (2009). Figure 1 shows the headings of the 200 analyzed questions. The full-text of selected questions are given in the text.

In the remainder of this paper, the text of posted questions is represented in Calibri font without serifs. The text is presented as it was entered by the users onto *Yahoo! Answers*, with no modifications to spelling, punctuation, or grammar.

1	Can someone explain Basic Christian/Catholic Beliefs?	101	Why do alot of people criticize Christian beliefs?
2	Christian beliefs....?	102	Christian beliefs about God?
3	Why do so many people confuse Christian beliefs with Jewish ones?	103	If you think Gav marriage should remain illegal based on Christian Beliefs...?
4	CHRISTIANS ONLY: What beliefs do ALL Christian denominations have in common?	104	What are the differences between the Pagan Beliefs and the christian beliefs?
5	Christian beliefs?	105	Am I destroying his Christian beliefs?
6	Christian belief question?	106	How common is this Christian belief?
7	Is this a common Christian belief?	107	Do all Christians worship the same god? If not, how many Christian gods are there?
8	Christian Science belief?	108	Why would Christian beliefs be considered "self-serving lies"?
9	Christian Monism beliefs?	109	Christians, should Christian beliefs be required?
10	What are the basic christian beliefs?	110	How about a Atheist modifying Christian Belief?
11	What is exactly amillennialist Christian belief?	111	Why most christians debate about their beliefs???
12	How did the Protestant Reformation affect the Christian belief today?	112	Christians and belief in ghosts?
13	What are christians beliefs ( views) on charity?	113	Christians - is it true that you believe everyone who is not a Christian is going to
14	Mormon beliefs vs Christian beliefs?	114	Is true Christianity dependent on suffering for ones' Christian beliefs?
15	How is homosexuality against Christian beliefs?	115	The Christian beliefs in Trinity?
16	Christians??..?	116	What are the maior differences between catholic beliefs and average christian
17	How exactly does evolution oppose Christian beliefs?	117	Why are there so many parallels between Pagan and Christian beliefs?
18	Question about a basic fundamental christian belief?	118	Atheists: What are some of the funniest/stupidest Christian arguments/beliefs?
19	Help on non-literal Christian beliefs?	119	New Thought/ Unity Christian beliefs?
20	Where is Satan right now (According to Christian beliefs)?	120	Christian beliefs???????
21	So if I bash the Christian belief I'm a Christian basher?	121	Explain Christian Beliefs About The Trinity...?
22	Very Confused!Is my Christian belief a lie????	122	Ramadan: How do you refute this Christian belief?
23	Do Christians believe that modern science is some kind of a conspiracy?	123	Christians, what are your beliefs on Buddhism?
24	Does Christian belief and doctrine prevent ethical and moral behaviour?	124	A question for those to hold to the Judeo-Christian beliefs...?
25	Questions on the christian belief of the afterlife???	125	Born Again Christians Christmas beliefs?
26	Christian reincarnation beliefs? Atheist friend?	126	What do Jehovah Witnesses believe that differs than my Pentecostal Christian
27	What's the Unitarian Christian belief?	127	Does the Apostles Creed cover Christian belief?
28	Should I respect Christian beliefs?	128	What are christian beliefs about a 15 year old getting pregnant?
29	Why are Christian beliefs incompatible with Jewish beliefs?	129	Are Christians fearful of other beliefs?
30	Atheists, do you fully understand the Christian belief you are rejecting?	130	Is the belief of December 21, 2012 a Christian belief?
31	How have Christian beliefs changed from before?	131	Difference Between Catholic And Christian Beliefs? What Happens In Regards To
32	Why do many people with individualized Christian beliefs still call themselves Christians?	132	How do Christians express their beliefs?
33	Jewish and Christian beliefs changed?	133	Viking and Christian Beliefs?
34	What is the difference between Catholic & Christian beliefs?	134	Why do so many Christians have conflicting beliefs?
35	ACCORDING TO CHRISTIAN BELIEFS...?	135	Christians, were christian beliefs drastically different prior to the Councils that
36	Is it wrong, according to christian beliefs to date.....?	136	Did Christians adopt Pagan beliefs?
37	What's the Christian belief on sinners?	137	Christian or atheistic beliefs, which are more logical and why?
38	How are Christian rights or beliefs threatened?	138	Why do Christians think their belief is better than other religions?
39	Is being a bi sexual against Christian belief?	139	How do christian beliefs conflict with samsara?
40	Please tell me if my Christian beliefs are correct?	140	Describe Christian beliefs about the origins of humanity.?
41	Devoted Christians: can you answer these questions for me?!?	141	What are the beliefs of Christian Orthodox about sex?
42	Christian vs Muslim Beliefs.....?	142	Christians: Is this the general of your beliefs?
43	What are Christians beliefs in Guardian Angels?	143	Christians: Do your beliefs influence your entertainment choices?
44	Why are so many Christians close-minded about belief?	144	According to christian belief, God is the Lord of the Angels?
45	What evidence is there of christian belief in Britain Today?	145	Can you outline the main beliefs of the Jewish religion?
46	Christian beliefs/customs - good or bad? (to other Christians)	146	Is the belief of December 21, 2012 a Christian belief?
47	How does a church reflect Christian beliefs?	147	Christians: If I questioned your faith and belief, would you crumble?
48	Do Christians think Mormon beliefs are ridiculous?	148	Trying to share Christian beliefs without sounding judgemental?
49	How Do Other Christians affect your belief ?	149	Does the Christian belief about the serpent being Satan related to...?
50	Hapkido karate mesh with Christian beliefs?	150	Looking for a Christians with modern beliefs?
51	Christian beliefs and what to believe?	151	Can I follow buddhist beliefs if I am a christian?
52	Question About Christian Beliefs?	152	Is approval-seeking a big factor in christian belief?
53	Can you help me with a little understanding of Christian beliefs?	153	Why is it that the christian belief is so wrong?
54	What are the basic beliefs of a christian anarchist?	154	Why didn't Christian beliefs stand in Hitler's way?
55	What is the difference between Jews and Christian beliefs?	155	My Christian and Scientology concurring beliefs?
56	What is the difference between Roman Catholic beliefs and Christian beliefs?	156	Is it possible to have some Christian beliefs but be sav?
57	Does the Goldilocks theory support Christian belief or science?	157	Christians: christianity and traditional native American beliefs?
58	So do all christians have different beliefs?	158	Christian Beliefs? Need some information.?
59	What is Satanism: a religion separate of Christian beliefs or no?	159	Why does christian belief dominate all other beliefs?
60	Wavering Christian Belief?	160	What are Christian Beliefs on Dating?
61	What are the main Christian Beliefs?	161	What are basic Christian Beliefs (Mormon protestant catholic et...
62	Why can't Christians defend their beliefs?	162	Christian beliefs?
63	I thought that westerners are smart people but Christian beliefs say otherwise?	163	America was "founded on Christian beliefs"?
64	RE homework help, christian beliefs about forgiveness and christian attitudes towards other	164	Christians, which of your religious beliefs can be proved to be true?
65	Do greek organization go against Christian beliefs?	165	Do your Conservative/Republican beliefs trump your Christian beliefs?
66	What are the necessary beliefs to call yourself a christian?	166	Why are Christians so afraid of people questioning their beliefs?
67	What are Christian beliefs on same sex couples...?	167	Is there much difference between atheist and Christian beliefs?
68	Golden Compass and other movies against christian beliefs?	168	Can Christians Accept Atheists Beliefs?
69	False Christian Beliefs in the church?	169	What are some of beliefs that Christians can be deceived about?
70	Why are Christians criminalised for their beliefs?	170	Christian beliefs, and christian gnostic beliefs...is there a difference? (during the
71	This country was built on Christian Beliefs! (The USA)?	171	According to Christian belief, am i a demon?
72	A question regarding christian's beliefs on atheists?	172	Born-again/Convert Christians: What made you turn to belief in God?
73	Is evangelism justified by the Christian belief in Hell?	173	Do you think that republican beliefs perfectly match up with Christian beliefs?
74	In regards to Christian belief, must one be a Christian to go to heaven?	174	Explain how the Nicene Creed represents Christians belief about the Nature of
75	In accordance with christian belief, do Jewish people still go to heaven?	175	Does the whole of the Christian system of beliefs rest on a single premise (other
76	Christians, Why do "some" of you think America was founded on Christian beliefs?	176	Catholics, Protestants, Fundamentalists, A question on your Christian beliefs.?
77	Mix of Pagan and Christian beliefs?	177	Why do some Christians laugh at Mormon beliefs?
78	How do DeMolay affairs conflict with Christian beliefs? Should I join?	178	Non-Catholic Christians: your beliefs about Catholics?
79	Christians: What do you think of Unitarian Christian beliefs?	179	Christians: do you sometimes feel disabled by your beliefs?
80	What are your christian beliefs?	180	What is the Christian definition of monotheistic belief system?
81	Can I mix Paganism with my Christian beliefs?	181	What are the different Christian beliefs about the environment?
82	Is christianity new judaism (By us christian belief)?	182	Christians: Will you please explain your beliefs?
83	How many christian beliefs do not come from the bible?	183	Am I a muslim or christian (beliefs check)?
84	Who told Christians to be tolerant of other people's beliefs?	184	Why on earth would Christian belief, trump Jewish belief, over who is JEWISH?
85	The US was not founded on Christian beliefs?	185	Christian Beliefs, How would a Christian support marriage counselors etc. and
86	Question about the Christian belief in "free will"?	186	Christians beliefs vs Hinduism beliefs?
87	Christians: Where do all other religions go when they die?	187	Are Christian beliefs about Heaven and Hell too old fashioned for people today?
88	Is yoga against the Christian beliefs?	188	Christians: Are you upset by other Christians that are uneducated or extreme on
89	New Thought/ Unity Christian Beliefs?	189	in the Christian belief, Is Sodomy itself "sin" or is sexual acts between the same
90	Is hypnosis against Christian Beliefs?	190	What is it called with you believe in GOD but not all Christian beliefs?

Figure 1: Headings of the 200 questions posted on Yahoo! Answers (continued on next page)

91	Compare christian beliefs and rituals with jewish and sikh ones.?	191	Are Catholics considered Christians?
92	What are the different beliefs of Christians and Catholics?	192	Can a christian compromise their beliefs
93	How did the Christian beliefs lead to the development and flourishing of modern day	193	Christians: Belief based on personal experience?
94	Why do christians force thier beliefs on everyone?	194	Question to Christians about God.?
95	What has this got to do with a Christian's beliefs?	195	Christians: your view on becoming a Christian Wicca
96	Is this against the christian belief?	196	Is the Christians belief in a god that made the universe only a small part of their
97	Question about logic and Christian belief. . . ?	197	Can I mix Paganism with my Christian beliefs
98	Christian and Jewish beliefs?	198	Would your Christian beliefs change if there were irrefutable proof that Jesus was
99	My girlfriend and her christian beliefs.?	199	Are christian apologetics against or with christian beliefs?
100	"The Last Things" and Christian Beliefs ?	200	Why do Christians feel that belief in ghosts is demonic trickery

Figure 1: Headings of the 200 questions posted on *Yahoo! Answers* (continued from prev. page)

### 3.2 Data analysis

The analysis in this present study in the first instance examined the fit between the 200 questions on ‘belief’ drawn from *Yahoo! Answers*, and the question taxonomy presented by Bowler et al. (2012). To that end, we conducted a qualitative, directed content analysis (Hsieh and Shannon, 2005): that is, we began the coding with the Bowler et al. (2012) framework and modified it to better describe the themes emergent from the ‘belief’ questions.

For ease of manipulation, we merged each post’s heading and body text together into a single block of text. These posted questions ranged in length: the shortest was a mere 8 words (“Are christian apologetics against or with christian beliefs?”), while the longest weighed in at 953 words (a query in 16 parts about Christianity and ‘The Last Things’). The average was approximately 114 words—long enough to support complex and nuanced information need.

## 4. RESULTS

The set of categories that emerged from our analysis of the 200 *Yahoo! Answers* questions about Christian ‘belief’ are presented in Table 1. The top level of this taxonomy is identical to the classification developed by Bowler et al. (2012) for describing teen questions about eating disorders, with the exception that the Bowler category *Seeking Emotional Support* is



replaced by a more topic-specific *Seeking Belief Support*. The second level of Bowler's taxonomy is included in Table 1; here the differences are more radical (and are discussed further in Section 6). It is at the sub-category level that the taxonomy is naturally tailored to describe the question topics.

Category	Subcategory	Bowler et al. (2012) subcategories for eating disorders
Seeking Information	<ol style="list-style-type: none"> <li>1. Differences between Christian Denominations</li> <li>2. Differences between Christianity and Other Religions</li> <li>3. Clarification of Christian Tenets &amp; Practices</li> <li>4. Statements of Personal Christian Belief</li> <li>5. America &amp; its Christian Roots</li> </ol>	<ol style="list-style-type: none"> <li>1. Factual</li> <li>2. Diagnosis</li> <li>3. Treatment or Intervention</li> </ol>
Seeking Belief Support		<ol style="list-style-type: none"> <li>1. Validation</li> <li>2. Seeking Comfort</li> </ol>
Seeking Communication		<ol style="list-style-type: none"> <li>1. Conversation Starters</li> <li>2. Deep Talk</li> </ol>
Seeking Self-Expression	<ol style="list-style-type: none"> <li>1. Reflection</li> <li>2. Diatribe</li> </ol>	<ol style="list-style-type: none"> <li>1. Confession</li> <li>2. Reflection</li> </ol>
Seeking Help to Complete a task	Schoolwork (secondary & tertiary)	<ol style="list-style-type: none"> <li>1. Homework Help</li> <li>2. Manuscript Ideas</li> </ol>

Table 1. Taxonomy of 'belief' questions

We first describe the categories and subcategories for the questions regarding belief (Sections 4.1 to 4.5), and then present a quantitative analysis of the application of the taxonomy to the questions (Section 4.6).

#### 4.1 Seeking information

The majority of the 200 questions analyzed fall into this category: some portion of the question is posed so as to elicit a response that fills an information gap. Few of the desired responses were in the form of a statement of fact; the majority of posts did not lend themselves to

a simple or straightforward response. Where Bowler et al. (2012) found a significant proportion of Seeking Information questions “could easily have been answered by searching the Web with a search engine”, many of the questions here would indeed be difficult for a solo (and novice) searcher to answer.

While some of the questions address sophisticated theological concepts, many exhibit a minimal understanding of Christianity: for example, by apparently thinking that Christianity and Catholicism are separate and conflicting (e.g., “What are the different beliefs of Christians and Catholics?”) or the question

Do all Christians worship the same god? If not, how many Christian gods are there?

In the first subcategory, we see a number of comparative questions, e.g., asking for the *Differences between Christian Denominations* as being concerned with distinctions within the given faith:

Christian Monism beliefs? What are the beliefs of Christian Monism?  
How does it differ from popular Christianity?

Christian belief seems to be used as the main comparator, for example, in requests for discussion of the *Differences between Christianity and Other Religions*, or whether Christian belief can be reconciled with aspects of other faiths. The list of other faiths is lengthy: Islam, Judaism, Buddhism, Hinduism, and Wicca, as well as political and other schools of thought (anarchism, belief in reincarnation, Hapkido karate). Though we have no demographic information about the posters, given that the language is English, it seems likely that the majority are living in Western countries – and so are likely to have had greater exposure to Christianity than to other religions.

The next set of sub-categories (*Clarification of Christian Tenets & Practices*) these questions ranged from the very general to the highly specific. The following are examples of questions about the fundamentals of the Christian faith:

What are the necessary beliefs to call yourself a christian?  
many people call themselves christians, but they all have different beliefs, and many reject huge sections of the bible completely. of course, everyone is entitled to their own beliefs, but not if you are claiming to be a christian.  
a christian by definition must believe a number of things;  
1. god exists  
2. jesus is the only way  
(some people even reject this, and i dont see how)  
what are the foundations of christian belief?

The majority of these posts go far beyond the basics of the faith, including questions about the afterlife, the acceptability of homosexuality and divorce, the role of suffering in Christianity, and attitudes toward mysticism, among others.

Posters requested answers in the form of statements of personal understanding of the religion (*Statements of Personal Christian Belief*). These posts ask questions about Christianity but are primarily curious about the responders' personal beliefs rather than (necessarily) authoritative responses:

Christians??...?

What is a christians in ur opinion??..what are they beliefs??...i think the problem in this place is that people [non-christians generally] just say that we all believe in hell..or we all believe in ...whatever its...

The questions in the fifth sub-category of *Christian Seeking Information* posts, *America & its Christian Roots*, were uniformly confrontational questions/statements challenging what the posters see as platitudes about the foundations of US history and culture. In our previous study

(Cunningham & Hinze, 2014), we did not find a corresponding *Country X and its Muslim Roots* subcategory. This difference seems likely to reflect a USA-centric population of contributors to this section of *Yahoo! Answers*.

This country was built on Christian Beliefs! (The USA)?

When people say that this country is founded on Christian beliefs, does that mean after the Christians killed the Native Americans and destroyed their beliefs? Or is it regarding other christian beliefs like Slavery and Segregation. Please help clarify which one of these that god thinks is best.

## 4.2 Belief support

These questions were posed by persons of previous or wavering religious faith, seeking responses that would strengthen their faith. For example:

Wavering Christian Belief? I'm only a teen, so bear with me here. My belief Christianity has been wavering for as long as I can remeber. Sometimes I'm convinced of the existence of Jesus/God and other times I'm in doubt. Usually I'm somewhere in between, leaning on the side of belief. I REALLY do want to believe, but some part of me keeps holding me back (I'm pretty sure it's my brain!). So my question to you is, what makes you a firm believer?

Note that these posts also tend to overlap with other categories: *Seeking Communication*, by calling for opinions, advice, and simple correspondence from others; and *Seeking Self-Expression*, by recording experiences and personal religious positions.

## 4.3 Seeking communication

These questions are posed to elicit a 'conversation' between the question poster and respondents, generally by asking for opinions about a religious issue:

According to Christian belief, am i a demon?

Okay, so in Paradise Lost, the demons said that pain would be their pleasure. im masochistic, so i feel a lot like this. According to common Christian belief, does that make me a demon? And if so, does that justify me cutting or killing myself?

And please don't insult my religion, or tell me not to kill myself, i just want to know what my religion says about me. Thanks

These questions do not seem to ask for 'the' answer (as might a *Seeking Information* question), but rather look for a set of possibilities, based on the individuals' experiences in faith.

Note that the *Statements of Personal Christian Belief* questions (a subcategory of *Seeking Information*) may also fit into the category of *Seeking Communication*, in that they often (but not always) begin a back-and-forth discussion of the responses. The conversation may involve clarification of the original question, a response (sometimes acrimonious) to individual answerers, or the question poster being asked (or feeling pressured) to confirm that they were sincere in asking for these personal affirmations and not simply 'trolling'. The mechanism for indicating an addendum to a question is the Update:

Update 2: Oh my gosh, people... please READ THE DETAILS... the question is, why do Christians want gay marriage prohibited but not fornication?

Update 2: @Fah King: Thanks for proving my point you bigot.

Update : Sorry to offend anyone, but I was just curious about the differences. I just wanted to know what it was. That's why I asked. I just wanted an answer to help me understand.

The original category in Bowler et al. (2012) included a subcategory they called Deep Talk, in which the poster solicited direct contact outside of *Yahoo! Answers* between the question poster and individual respondents. We did not note any similar questions in this sample of questions.

#### 4.4 Seeking self expression

Some of the postings to *Yahoo! Answers* were not really questions, but rather statements of personal religious position. We see two types of expression: the *Reflection* and the *Diatribes*.

In a *Reflection*, the poster builds on the question and responses to work towards a clarification of his/her personal religious beliefs. In the following example, we see the poster move from a seemingly straightforward *Seeking Information* query aimed at soliciting belief statements from Christians, to concern that the non-believers do not see the multiplicity of beliefs within the Christian tradition, to an introspection about the poster's opinions on several Christian tenets, to an expression of openness to conversation with people of different faiths, then back to the original solicitation of opinions, and concluding with updates responding to answers with further clarification of the posters' beliefs.

Christians??...? What is a christians in ur opinion??..what are they beliefs??...i think the problem in this place is that people [non-christians generally] just say that we all believe in hell..or we all believe in ...whatever its...

I'm a christian...i believe that God sent his Son to eath...i dont believe in hell [show me in the bible a place that says that we actually "LIVE" after we die?], i believe that people shouldnt confess to people about sins that commited against God, because they [priest] are only humans, and not better than anybody else, i think you can get to heaven by just having faith in him...i dont pray to the virguin mary, or any statue or none-living thing, i believe that people should be respected, no matter what religion they have, but i love talking to people from different cultures and religions, because sometimes they might seem that they know more than we do...and now is my question...do u still think that we're all the same?...what is a christian in ur opinion?

Update : oh..and i do believe in heaven...its just that we'll go when he comes again to earth...2 adventment...

Update 2: Hell exist when he comes again..no after we die..in the part that say "and it was the second death" it means that the people ..not saved will die again in a "hell" if u wanna call it like that...

In contrast, the *Diatribes* presents an explicit position – and in this sample of questions, the *Diatribes* are exclusively strongly critical. This type of post appears to be intended to be provocative of believers, rather than to initiate a discussion or to echo internal musings. For example:

So if I bash the Christian belief I'm a Christian basher?  
So what do you call a Christian bashing other people's beliefs?  
For example what is a Christian bashing Islam called?  
Or a Christian bashing Atheism?

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Or this happens all the time, Christians bashing Satanism?

What about Christians bashing Wicca?

What are these Christians called? Why is it righteous for Christians to bash but not for anyone else? It seems that Christianity is a religion based on contradictions. They practise an "eye for an eye", but to their enemy they preach to "turn the other cheek". Am I the only one who sees the hypocrisy in this faith?

#### **4.5 Seeking help to complete a task**

As was the case with Bowler et al. (2012), students which appeared to be from high schools and universities requested assistance with an essay or a project, in studying for a test or exam, and in second-guessing exam responses. For example:

Can someone explain Basic Christian/Catholic Beliefs?  
For school I need write an paper about Christianity. I don't know much about it. Just some beliefs would be nice.

----

How do Christians express their beliefs?  
I need to know how Christians express their Beliefs in Detail, but not too much

It is striking that many of these questions are upfront about how the responses will be used to complete homework, and detail the form of response desired:

Explain how the Nicene Creed represents Christians belief about the Nature of God?

Explain how the Nicene Creed represents christians beliefs about the nature of god?

Structure it like this:

Paragraph 1: God the Father

Paragraph 2: God the Son

Paragraph 3:God the holy spirit

Some posts point to impending deadlines, perhaps in the hope that responders will identify with and react sympathetically to their predicament:

I need info on christian beliefs on God QUICK because i have a religious education project about christianity in 2 days !!!! plz no trolls

Only one poster for this category justified the request for assistance by pointing to the inadequacies of the sources that their own previous searches had uncovered:

... there doesnt seem to be much information on websites, I just thought I'd ask on here, maybe i could get opinions from some individual Muslims.

Any comments telling me to do my own homework will be ignored, i am doing my own homework, im just researching the answer from a more active source.

In general, the posters do not seem to feel it necessary to state that they will not copy the responses directly into their assignments. Like Bowler et al. (2012), we question whether the posters or responders draw distinctions between plagiarism, cheating, and 'crowdsourcing'.



#### 4.6 Quantitative analysis and additional observations

Many of the questions did not fit neatly into a single category. We analyzed 200 questions and coded them into 268 instances of the five top level categories: 131 questions into only one category, 66 into two categories, and three into 3 categories.

Further, the distinction between categories is not always clear-cut. The line was particularly difficult to draw in distinguishing between the sub-categories *Differences between Christian Denominations* and *Differences between Christianity and Other Religions* very clear due to misunderstandings on the part of the posters. For example, questions about the difference between Christianity and Catholicism (7 of 200 questions) should logically be categorized under *Differences between Christian Denominations* but are probably *Differences between Christianity and Other Religions* in the poster's mind. These were coded as *Differences between Christian Denominations*.

Questions such as "In accordance with christian belief, do Jewish people still go to heaven?" are coded as *Clarification of Christian Tenets & Practices*, as they do not ask for a comparison between two religions but rather focus on Christian belief.

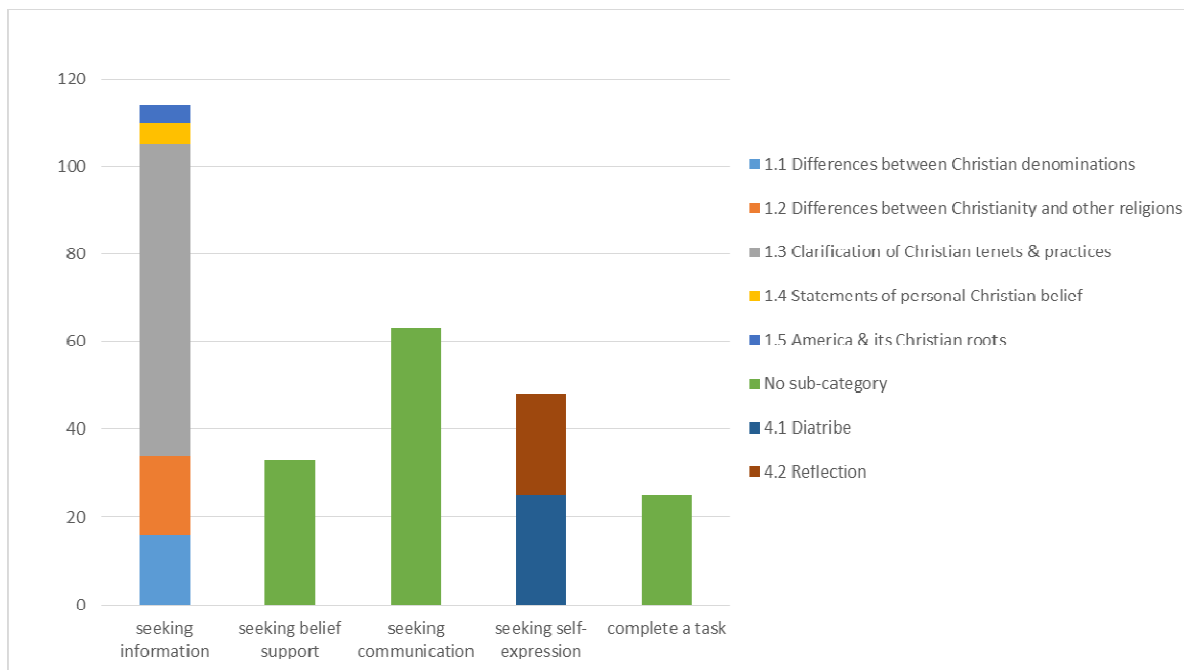


Figure 1. Questions by category and subcategory.

From the chart in Figure 1 we see that most questions were for seeking information, and within these, most sought clarification of Christian beliefs and practices. We observed that 15 of 200 questions involved aspects of sexuality (e.g. homosexuality, pregnancy, sex), which occurred across different categories.

A number of questions are explicitly directed at selected groups, e.g. atheists (2 of 200), Christians (18 of 200), or Muslims (1 of 200):

Atheists, do you fully understand the Christian belief you are rejecting?

---

Devoted Christians: can you answer these questions for me?!?

---

CHRISTIANS ONLY: What beliefs do ALL Christian denominations have in common?

---

Salam wa alaikum my fellow Muslims and Muslimahs, ...

Overall, 22 posters mentioned sources, mostly to provide background to support their question (18). Three posters paraphrase or refer to authors in their question (e.g. Sylvia Brown, Richard Dawkins, Chloe Clifford-Frith, A.C Grayling) in a rather vague manner, to center or aid their question. In a similar manner, one poster mentions a movie (*The Golden Compass*). Three posters directly provide quotes that shape their questions: references to websites with lengthy quotations and source URLs, the Treaty of Tripoli with quotations, and Wikipedia quotations with URLs. One poster observes the lack of websites containing information on the question. One poster includes in their post a reference to another *Yahoo! Answers* page. Three posters quote the Bible/Mormon text without specific references, (“an eye for an eye”, “I and the father are one”, “My father is greater than I”), while one quotes and gives Bible references (John 15:18-25), and another provides Bible references without quoting the text (Letter to the Hebrews 9:27). One poster refers in general terms to the Torah. Two mention that they read something “on a website” (no specific reference given). One poster refers to another *Yahoo! Answers* post to illustrate their opinion.

Very few (4) posters seem to expect sources to be identified in answers—surprising, particularly given that the 25 posts categorized as *Complete a Task* are asking for assistance in secondary and tertiary schoolwork. Of those four posts requesting sources for answers, one poster asks vaguely about Christian beliefs stemming “from the Bible”; one requests “trustworthy websites (not wikipedia)” for their social studies project; and two posters ask for specific references that are supporting an opinion (“where in the New Testament...”, “who told Christians...”). This general lack of concern about documentation of the sources upon which

answers are based underscores the importance being placed by the question posters on the responders' direct experience of religion and their personal religious beliefs / understanding.

## 5. DISCUSSION

Many of the *Informational* questions and questions *Seeking Help for a Task* are fairly straightforward and could easily be answered by simple Web searches. For the latter categorization, we speculate (Section 4.5) that students are simply using *Yahoo! Answers* as a shortcut for completing assignments.

For the remainder of the *Informational* questions and the *Seeking Belief Support*, *Seeking Communication*, and *Seeking Self-Expression* posts, we see a strong conversational element emerge in the posts and the responses. The architecture of *Yahoo! Answers* is not designed for back-and-forth discussion. The main mechanism for reply is the Update function, which allows the question poster to create addendums to the original message, and this addendum can include responses to statements in answers. However the mechanism is clumsy, as the Update is not positioned near the answer it is responding to and that answer is likely to be found on a different webpage if the original question has attracted more than one or two responses.

Despite the awkwardness and inconvenience of building a conversation via Updates, the mechanism sees significant use in our 400 sample questions (117 times in the 200 Christian + belief posts, 121 times in the Islam + belief posts). Clearly, the *Yahoo! Answers* posters are looking for more extensive contact with others than the system was designed to support.

Why then might people turn to *Yahoo! Answers* for information and discussion of belief, given that there is no guarantee of authority, or even response, to factual questions, or accessible

opportunities for discussion? Given the sensitivity of the topic, we speculate that one of the attractions for discussion of religious beliefs on *Yahoo! Answers* lies in the anonymity of the forum. It is difficult enough to grapple with one's own beliefs, yet opening up to friends and relatives to discuss moving away from a formerly shared faith may feel threatening. Even among the faithful, the personal expression and experience of religious belief can feel too intimate to share when face-to-face. It is also generally easier to ask questions anonymously about subjects that are genuinely unfamiliar, to avoid appearing naive or ignorant.

But while anonymity can create an impression of a safe space for discussion, it can also provide a forum for deliberately confrontational or inflammatory messages. Witness, for example, posts challenging religious belief that are more statements than questions (e.g., the *Diatribes*, Section 4.4). The poster gains the satisfaction of attacking what s/he perceives as the orthodoxy, but without fear of personal reprisal.

We also note that even with the best of intentions, the inadequacy of the text interface can add to the difficulty of establishing a sincere religious conversation through *Yahoo! Answers*. The sensitive nature of the topic can leave posters open to the suspicion that their questions are not genuine, and that they are simply trolling to provoke controversy. Some posters attempt to head off aggressive responses by defensively stating upfront their innocent intentions; e.g.,

I am curious of other religions. What do you base your faith on? I just need some insight and I want to better understand your faith. Thanks!

Other posters seem taken aback by the hostility unleashed by what they had thought was an innocent query; for example:

Update : Um..I just want to learn more about it.. I didn't need all the hateful answers..thanks.

Some questions that seemed to be about seeking information were phrased as asking for opinions. For example:

Do greek organization go against Christian beliefs?

I am interested in a NPHC sorority which I have been doing research on. I came across a website that sororities and fraternities are not of Christian principles. As much research I do I see nothing wrong with these organizations. Can someone give me their opinions on this?

This could be meant as an acknowledgement that there will exist several opinions rather than a unique and definitive source of truth, which might be consulted somewhere. We observe that the requester is not asking for any sources to be provided or to be referred to some resource, but instead asks for opinions.

## 6. CONCLUSIONS

Bowler et al. (2012) describe their taxonomy as “not meant to be a universal categorization of all questions in *Yahoo! Answers*.” However, their categories were developed “specific to the questions asked by teens, about eating disorders.” Despite this caveat, we see that the top-level categories transfer well to describe questions about belief (see Table 1). The upper level categories that emerged from Bowler et al.’s analysis (2012) were: *Seeking Information, Emotional Support, Communication, Self-expression and Help to Complete a Task*. For our categorization, the *Emotional Support* class was more naturally translated as *Seeking Belief Support*; the remaining four classes were appropriate to describe the ‘belief’ questions.

At the second level of the taxonomy, we see differences between the sub-categories for questions related to Islam and Christianity in the *Seeking Information* category – which is to be expected given that the two domains are very different. The taxonomy of the ‘belief’ questions is less detailed at the second level for the *Seeking Belief Support, Seeking Communication*, and

*Seeking Help to Complete a Task* categories; each of these merited just two subcategories in the Bowler et al. (2012) taxonomy. Finally, one of the Seeking Self-Expression subcategories also differed—the eating disorder posts included *Confessions* and *Reflections* (explorations of the posters' personal experiences with anorexia and bulimia), while the 'belief' categories included inwardly directed *Reflections* (exploring the posters' personal faith) and outwardly directed *Diatribes*.

On the whole then, the Bowler et al. (2012) framework is expressive enough to capture the perspectives embodied in the 'belief' questions. It remains to be seen whether the framework will also fit less personal and emotionally sensitive subjects such as the technical / software issues addressed by Mamykina et al. (2011) – though we suspect that it may, as even these seemingly neutral topics can attract emotional investment. The emotional, social, and affective aspects of information seeking have been relatively neglected, particularly as regards to information system design and modeling of the information-seeking process (Section 2); this framework captures that side of the information seeker's experience.

As regards explorations of specifically religious information seeking, *Yahoo! Answers* presents an opportunity to capture an otherwise inaccessible aspect: laypeople reaching out to other laypeople for information and conversation about religion. We see from this small sample a rich collection of behaviors, including a strong emphasis on dialogue and exchange of views. One challenge for development of forums is to establish a 'safe space' for these conversations, while at the same time maintaining the openness and freedom to explore ideas that is apparently valued by the *Yahoo! Answers* participants.

We further note that this present article looks at the question posts, and the corresponding behavior and motivations of question posters. A follow-up study of question responses is needed

to build an understanding of that side of the *Yahoo! Answers* ‘conversations’, and to enrich our understanding of the question posters’ assessment of quality in responses. Evidence from recent studies of answers to questions about eating disorders (Bowler et al., 2013; Oh et al., 2013) indicates that the behaviors are likely to be complex and multifaceted.

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