What Do People Ask Their Social Networks, and Why? A Survey Study of Status Message Q&A Behavior

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ABSTRACT
People often turn to their friends, families, and colleagues when they have questions. The recent, rapid rise of online social networking tools has made doing this on a large scale easy and efficient. In this paper we explore the phenomenon of using social network status messages to ask questions. We conducted a survey of 624 people, asking them to share the questions they have asked and answered of their online social networks. We present detailed data on the frequency of this type of question asking, the types of questions asked, and respondents' motivations for asking their social networks rather than using more traditional search tools like Web search engines. We report on the perceived speed and quality of the answers received, as well as what motivates people to respond to questions seen in their friends' status messages. We then discuss the implications of our findings for the design of next-generation search tools.

Author Keywords
Social search, social networks, Q&A, Web search.

ACM Classification Keywords
H.5.4 Information Interfaces and Presentation – Hypertext/Hypermedia: User issues.

General Terms
Design, Human Factors, Measurement

INTRODUCTION
Social networking sites are often thought of as places to catch up on the personal information and current activities of social ties. In addition to social and playful uses, however, many users are harnessing their social networks as sources of information and productivity, for example by using business-oriented networking tools like LinkedIn or Beehive [7]. In this paper, we examine how people fulfill information needs using general-purpose social tools by using status messages to ask questions rather than to simply describe their current status.

Social networking services provide a source of information that is complementary to that provided by search engines; the former provide information that is highly tailored to an individual and comes from a highly trusted source, while the latter provides objective data from a variety of sources on a variety of topics. Understanding for what question types and topics people turn to a social network, rather than a search engine, and their motivations for doing so, can help in designing next-generation search tools that integrate both search engine and social functionality.

To better understand social network Q&A exchanges we conducted a survey of 624 people using social networking services like Facebook and Twitter. Our survey covered topics such as the prevalence of asking and answering questions via status-message updates, the types and topics of the questions asked, the speed and quality of the answers received, and the motivations people have for asking and answering questions on social networks. Our analysis also explores the influence of properties of the question and demographics of the asker on response speed and quality.

We begin by discussing related work on topics such as social networks and online question-asking services. We then describe our survey's methodology and findings. The results we present from our survey contribute the first detailed data on the use of social networks for question-asking. We conclude by discussing the implications of these findings for the design of social search systems.

RELATED WORK
To place the research presented here in context, we first give an overview of social networking services and studies of their use. We then discuss the phenomenon of social searching and show what Q&A sites have revealed about it.

Social Networking Systems
Social networking services enable a user to specify other users that they are connected to. Examples of popular social networking services include Facebook, Twitter, and MySpace. A December 2008 survey by the Pew Internet Project [20] found 35% of adult internet users in the U.S. have a profile on a social network, as do 65% of U.S. teens.

Researchers have explored many aspects of how social networking services are used. For example, Gilbert and Karahalios [12] studied what properties of connections between Facebook users were useful in predicting weak or strong offline social ties. Lampe *et al.* explored how university students' perceptions and use of Facebook changed over time [19]. They found students used

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Facebook "to get useful information," but did not explore whether this "useful information" consisted primarily of social awareness information or if it also included content gleaned from practices such as question asking. Joinson [18] identified seven primary uses of Facebook via a survey 241 users. Question-asking was not specifically asked about, but the behavior may be part of the identified use of status updating. Honeycutt and Herring [15] studied 36,000 public messages shared via Twitter, doing an in-depth analysis of 200 tweets containing the "@" symbol. They found three of the 200 were meant to "solicit information" from others. DiMicco *et al.* [7] reported on the use of Beehive, a corporate social networking tool. They found employees used the tool for "caring," "climbing," and "campaigning," but did not mention whether Beehive was used to ask or answer business-related questions. These are just a few examples of the many studies of social networks; however, none focus on the use of social networking systems to ask questions, which is the focus of our work.

Social Search

Broadcasting a question to one's social network is one way to find information online; other common methods include using a search engine or emailing a question to a particular person. The term *social search* refers broadly to the process of finding information online with the assistance of social resources, such as by asking friends, reference librarians, or unknown persons online for assistance. Social search may also involve conducting a search over an existing database of content previously provided by other users, such as searching over the collection of public Twitter posts, or searching through an archive of questions and answers, such as in the Answer Garden system [1]. Some researchers have built special tools to integrate social information with search engine use, such as HeyStaks [26], a browser plug-in that enables users to mark search results as relevant; these results are then boosted in the rankings of socially connected users who do searches on similar topics.

Collaborative search [23] is a social search where several users share an information need and work together to fulfill that need, in some cases using tools like SearchTogether [22]. Although people who ask questions via social network status messages do so to enlist the help of others, they are not engaged in collaborative search as the information need belongs solely to the question asker; they are, however, engaged in the broader phenomenon of social search.

Social search behavior appears to be common. In a 2008 survey, Wells and Rainie [29] found people used a mixture of internet search and social resources (*e.g.*, phone calls and face-to-face meetings) to answer many types of questions. Torrey *et al.* [28] found that craft-artists kept their social networks informed of current projects in the hopes of receiving "gifts of information," including pointers to relevant online resources that might benefit their projects. Some researchers have proposed formal models to describe the interplay of online information seeking with the use of social resources. For example, Pirolli [24] developed a model of social information foraging, and Evans and Chi [9] described the various stages in the search process when users engaged with other people.

To compare social search with more traditional search, Evans *et al.* [10] conducted a study in which eight participants completed two search tasks. For one task, participants used only non-social, online resources (*e.g.*, search engines), while in the other they used only social resources (*e.g.*, calls or emails to friends, and social network or Q&A sites). Evans *et al.* found that in the social condition targeting questions to specific friends versus asking a social network had similar outcomes in terms of task performance; questions posed to the social network received more answers, but those targeted to individuals received in-depth answers. We build on these explorations by contributing findings from a survey of 624 social network users about their question asking and answering.

Tools to Support Online Q&A

The Internet offers many opportunities for people to ask and answer questions online. There are, for example, third-party applications that Facebook users can install designed specifically for Q&A purposes (*e.g.*, "My Questions" [slide.com]). We focus on the use of status messages for question asking, which does not require the installation of additional applications and thus has a lower barrier to entry.

Expertise-finding systems help users identify people with a particular type of knowledge, which can be beneficial for question-asking. Collabio [5] is a tagging-based Facebook game designed to augment a network with metadata that can be used for expertise finding. Aardvark [vark.com] is a commercial expertise-finding system. Upon registering users tag themselves with areas of expertise and provide information about their network. Questions are then routed to members of the asker's network based on expertise. Rather than focusing on finding a particular expert within one's network to direct a question to, we study situations in which users post questions to their entire network.

Venues such as electronic bulletin boards, newsgroups, and question-answering sites enable users to post questions targeted either at a particular community or to the world at large. We refer to sites where users post questions to be answered by people not known personally as *Q&A sites*.

Question asking and answering behavior on Q&A sites has been well studied. For example, Harper *et al*. [13] identified two categories of questions posted to Q&A sites: *conversational* questions, intended to spark discussion, and *informational* questions, soliciting specific facts. They found informational questions have higher archival value.

Response times on Q&A sites tend to be long. For example, Zhang *et al*. [30] reported that when expert Java users posted questions to the Java Developer Forum, the average time to receive a response was nearly 9 hours. Hsieh and Counts [16] reported that the average time to receive an

answer to a question posted to Microsoft's Live QnA site was 2 hours and 52 minutes. Hsieh and Counts also reported that 20% of questions posted to Live QnA never received an answer at all. In this paper, we provide self-report data on the speed of responses to questions posted on social networks, rather than Q&A sites.

Some researchers have explored the factors affecting answer quality on Q&A sites. Raban and Harper [25] point out that a mixture of both intrinsic factors (*e.g.*, perceived ownership of information, gratitude) and extrinsic factors (*e.g.*, reputation systems, monetary payments) motivate Q&A site users to answer questions. Ackerman and Palen [2] and Beenan *et al.* [3] confirmed that intrinsic motivations, such as visibility of expertise and the feeling of making a unique contribution, influence participation in such systems. Results regarding extrinsic motivators have been more mixed; Hsieh and Counts [16] found market-based incentives did not increase answer speed or high-quality answers, but Harper *et al.* [14] found fee-based sites produced higher quality answers than free sites. In this work, we provide data on users' satisfaction with answers from social networks, rather than Q&A sites.

There are several factors that differentiate the experience of asking a question on a Q&A site versus on a social networking site. First, questions on Q&A sites can be posted anonymously (or under a pseudonym), whereas on a social networking site, the asker's true identity is known to the readers of the question. Second, the audience of potential answerers is much smaller on a social networking site than on a Q&A site, since it consists of only the direct contacts of the asker rather than an entire community or the internet at large. And finally, social networking sites typically impose a limit of only a few hundred characters on message length, whereas many Q&A sites allow much longer, more detailed questions to be posted. In light of these differences, it is valuable to study question asking behavior on social networks, since they provide quite a different audience and experience than Q&A sites.

SURVEY METHODOLOGY

Many popular social networking services, such as Facebook and Twitter, enable users to write a brief *status message*, which is then visible to their connections on the network. For example, Facebook's status message can be up to 423 characters long; the prompt "What's on your mind?" encourages the user to fill in the status box. On Twitter, status updates can be up to 140 characters long, and the prompt "What are you doing?" is used. A December 2008 survey by the Pew Internet Project [21] found that 11% of U.S. adults used online status-updating services. We conducted a survey to explore the ways in which people use status messages to ask questions of their social networks.

Survey Content

In addition to collecting basic demographic information and background information about participants' use of social networking services such as Facebook and Twitter, the survey asked a series of questions related to question asking and answering behaviors, such as whether respondents had ever used their status message to ask a question of their social network. If they had done so, they completed several follow-up questions about the frequency of this behavior, the types of questions asked, and the responses received. Additionally, we asked participants who reported asking a question to log onto the social network and copy and paste an example of a question they had recently asked into the survey form. We also asked whether participants had ever answered a question they had seen posted as someone else's status message. We then asked several follow-up questions to understand the motivation behind choosing to answer or not answer questions. Those who reported answering a question were asked to log onto the social network and copy and paste an example of a question they had answered, along with the text of their answer. As with all survey studies, the reader should bear in mind the inherent inaccuracies possible in self-report data.

Service	Never	Rarely	A few times a month	Weekly	A few times a week	Daily	A few times a day
Facebook	8.2%	18.0%	14.2%	12.3%	29.0%	7.7%	10.6%
Twitter	17.6%	19.9%	12.2%	5.2%	16.9%	7.0%	21.2%

Table 1. Percent of respondents who reported updating their status messages at a given frequency (of 612 Facebook users and 443 Twitter users).

Participants

The survey was completed by 624 people. A quarter (25.5%) of respondents were female, which is representative of the population invited to participate. Respondents were all Microsoft employees; 72.8% were full-time employees and 27.2% were university students working as summer interns. Participants were recruited via advertisements to email distribution lists about social networking or targeted toward summer interns, with a response rate of approximately 20%. We specifically advertised to interns to ensure a diverse perspective representative of typical social networking system users, since studies show such tools are heavily used by university students (a 2008 survey found that over 85% of college students had at least one social network profile [8]). Recent trends suggest that as social networking becomes more popular, however, the average age of participants has increased. For example, the number of adults with social network profiles quadrupled between 2005 and 2008 [20], and users over 35 are the fastest-growing Facebook demographic [11]. 28% of respondents were aged 18-25, 40.1% aged 26 – 35, 25.5% aged 36 – 45, and only 6.1% aged 46 and over.

Participants reported using a variety of social networking technologies, including Facebook, Twitter, MySpace, Orkut, Friendster, and LinkedIn. Facebook and Twitter were the most prominent services, with 98.1% of participants having a Facebook account and 71% having a Twitter account. We therefore focus our discussion of the survey results on these two services. Participants with Facebook accounts reported a median network size of 209 friends, which is slightly

larger than the average Facebook network size of 120 friends [11], while those with Twitter accounts reported a median of 25 followers, which is lower than the average of 85 followers [17] (the Twitter mean follower count of 85 is likely skewed high by the extremely high number of followers that corporate and celebrity accounts have). Table 1 gives a sense of how active respondents are in their use of social networking tools by showing the reported frequency with which they update their status messages.

Our findings should be interpreted in light of possible biases introduced by the demographic of our survey population. The demographic issue is somewhat mitigated by the inclusion of a large number of college interns in the survey sample; the age ranges and network sizes of our participants were reasonably close to those of the broader social network user population. However, our survey population was more tech-savvy and less gender-balanced than the general social networking audience.

Analysis

Opinions were reported on a 5-point Likert scale, where 5 = strongly agree and 1 = strongly disagree. Statistics involving Likert scale data use non-parametric tests, since participants may not interpret such scales as equidistant.

To better understand the nature of the example questions provided by respondents, two of the authors used an affinity diagramming technique [6] to iteratively develop a classification scheme for question *type* and question *topic*. Participants' motivations for asking questions of their social network and for answering questions posed by others were categorized in a two-phase process, involving first reading all responses to develop a categorization scheme, and then re-reading all responses to assign them to a category.

Significance of differences in the distribution of question topic and type and reported answer quality according to demographic properties of the asker are calculated using non-parametric tests (Kruskal-Wallis and Mann-Whitney).

THE QUESTIONS PEOPLE ASK

In this section, we report what our survey revealed about the questions people ask of their social networks. In the subsequent section we discuss what we learned about the answers people receive.

Rather than merely using social networking services for entertainment, participants reported using them to find practical information, indicating agreement (median = 4) with the statement, "I use sites like Facebook and Twitter to get useful information." Half (50.6%) of respondents reported having used their status messages to ask a question. We were provided with a total of 249 examples of questions participants had posted or answered (some participants were unable to provide an example despite having asked or answered a question due to inability to locate the example or privacy concerns). Examples ranged from silly ("Why are men so stupid?") to complex ("Point and shoot camera just died - need to replace it today for vacation tomorrow. Tell me what to buy/not buy. Think under $200."). We examine the examples we collected to better understand how participants phrased questions to their social network, the types and topics of the questions asked, the impact of demographics on question-asking, and participants' motivations for asking their social network rather than relying on some other means to find an answer.

Question Phrasing

The questions we collected were generally short. Although Twitter allows status updates to be up to 140 characters long, and Facebook up to 423, the collected questions had a mean length of only 75.1 characters (13.8 words). The majority (71.9%) consisted of a single sentence (mean = 1.4 sentences). Multi-sentence questions often used the extra sentence(s) to provide additional context about the question, such as explaining the motivation for asking. For example, one participant asked, "I'm creating tweetcloud t-shirts for an event. Does anyone have a company I can send the clouds to and have t-shirts made (not copy print iron-ons)?"

A majority of the examples (81.5%) were explicitly phrased as questions and included a question mark. For example, one respondent asked, "Should I replace my Blackberry with an iPhone, or just upgrade my Blackberry?" However, the remaining 18.5% were phrased in statement form and ended with a period. Questions that were phrased as statements were often preceded by inquisitive phrases such as "I wonder," or "I need," including, for example, "I need a recommendation on a good all purpose pair of sandals, preferably one I can get through Zappos."

Although most questions were implicitly directed to the asker's entire network (*e.g.*, "How can I type Akan symbols online?"), many (20.9%) used the phrase "anyone" to explicitly indicate the asker was seeking an answer from any member of their network. For example, one participant asked, "Anyone know of a good Windows 6 mobile phone that won't break the bank?" Questions were also often directed to "someone," "somebody," or "anybody." Some askers scoped their question even more specifically, directing it at a subset of their network that had a particular expertise. For example, one participant asked, "Developer? Take the Survey http://[url]." Another asked, "Hey Seattle tweeps: Feel like karaoke on the Eastside tonight?"

Question Types

We also looked at the type of questions people asked of their social networks. By *type* we refer to the nature of the question. Table 2 shows the categories and prevalence of the different question types observed. The table also illustrates each type using an example from the data.

The most popular question types, *recommendation* and *opinion* questions, both ask for subjective information; an opinion question asks for a rating of a specific item, while a recommendation question is an open-ended request for suggestions. *Factual knowledge* questions, on the other hand, have objective answers. *Rhetorical* questions correspond to the "conversational" category noted in

Question Type	Percent	Example
Recommendation	29%	Building a new playlist – any ideas for good running songs?
Opinion	22%	I am wondering if I should buy the Kitchen-Aid ice cream maker?
Factual knowledge	17%	Anyone know a way to put Excel charts into LaTeX?
Rhetorical	14%	Is there anything in life you're afraid you won't achieve?
Invitation	9%	Who wants to go to Navya Lounge this evening?
Favor	4%	Needing a babysitter in a big way tonight… anyone??
Social connection	3%	I am hiring in my team. Do you know anyone who would be interested?
Offer	1%	Could any of my friends use boys size 4 jeans?

Table 2. Breakdown of question types for the 249 example questions survey respondents had asked their networks.

Question Topic	Percent	Example
Technology	29%	Anyone know if WoW works on Windows 7?
Entertainment	17%	Was seeing *Up* in the theater worth the money?
Home & Family	12%	So what's the going rate for the tooth fairy?
Professional	11%	Which university is better for Masters? Cornell or Georgia Tech?
Places	8%	Planning a trip to Whistler in the off-season. Recommendation on sites to see?
Restaurants	6%	Hanging in Ballard tonight. Dinner recs?
Current events	5%	What is your opinion on the recent proposition that was passed in California?
Shopping	5%	What's a good Mother's Day gift?
Ethics & Philosophy	2%	What would you do if you had a week to live?

Table 3. Breakdown of question topics for the 249 example questions survey respondents had asked their networks. An additional 4% fell into the "Miscellaneous" category.

Harper *et al.*'s study of Q&A sites [13]; these are aimed at prompting discussion rather than eliciting practical answers. *Invitations* ask others to attend an event, *favors* request services from others, *offers* ask whether others are interested in receiving an object or service, and *social connection* questions ask to be introduced to people having specific characteristics.

Question Topics

In addition to looking at the question type, we also looked at popular question topics. Question *topic* refers to the subject matter of the question. For example, the question may be about technology or music. Table 3 shows the categories and prevalence of question topics, and illustrates each topic using an example from our data.

Technology questions were the most popular, and include those on computer hardware, software, programming, social media, mobile phones, cameras, and cars. *Entertainment* questions were also popular, and include questions about movies, TV, the arts, books, sports, and music. *Home & Family* questions include those on children, pets, health, cooking, gardening, and real estate. *Professional* questions are about jobs, education, and events such as professional conferences. *Places* includes questions about travel and about local transportation. *Restaurants* include questions about dining out at restaurants, cafes, and bars. *Current events* refers to questions about the news as well as questions about ongoing phenomena (*e.g.,* "Anyone else notice that bit.ly seems to be acting up today, slow to load, stats seem wildly off?"). The *shopping* category includes non-technology-related shopping questions, such as those about fashion, gifts, or services. The *ethics & philosophy* category includes musings on philosophical or moral issues.

The distribution of topics our participants reported posting to social networking sites differs from those explored

		Gender		Age				Network used		Frequency of use	
		Male	Female	18-25	26-35	36-45	46-55	Facebook	Twitter	Infrequent	Frequent
Count		157	77	51	93	71	15	126	49	205	29
Quest. Type	Opinion	23.6%	22.1%	21.6%	18.3%	28.2%	33.3%	18.3%	30.6%	20.7%	23.4%
	Recommendation	31.2%	29.9%	13.7%	35.5%	38.0%	26.7%	31.0%	28.6%	24.1%	31.7%
	Factual Knowledge	15.3%	13.0%	9.8%	22.6%	9.9%	6.7%	11.1%	26.5%	13.8%	14.7%
	Rhetorical	8.9%	16.9%	19.6%	6.5%	11.3%	20.0%	14.3%	6.1%	13.8%	11.2%
	Invitation	10.8%	10.4%	23.5%	10.8%	2.8%	0.0%	15.1%	4.1%	24.1%	8.8%
Question Topic	Technology	35.0%	22.1%	33.3%	26.9%	32.4%	40.0%	15.9%	61.2%	24.1%	31.7%
	Entertainment	17.8%	19.5%	19.6%	24.7%	11.3%	6.7%	24.6%	6.1%	24.1%	17.6%
	Home & Family	8.3%	19.5%	7.8%	14.0%	14.1%	6.7%	19.0%	0.0%	13.8%	11.7%
	Professional	10.8%	9.1%	7.8%	9.7%	11.3%	6.7%	7.9%	10.2%	3.4%	11.2%
	Places	8.9%	5.2%	15.7%	5.4%	5.6%	6.7%	7.9%	6.1%	13.8%	6.8%
	Restaurants	5.7%	7.8%	0.0%	8.6%	7.0%	13.3%	7.9%	2.0%	6.9%	6.3%
	Current Events	6.4%	2.6%	0.0%	8.6%	5.6%	0.0%	5.6%	10.2%	3.4%	5.4%
	Shopping	3.2%	7.8%	5.9%	2.2%	7.0%	6.7%	4.8%	4.1%	3.4%	4.9%

Table 4. Breakdown of question topics and types by demographics. We exclude the *favor*, *social connections*, and *offer* question types and the *ethics* question topic from this chart, since those categories represented only a small fraction of questions. Shading indicates that prevalence of a topic/type differed significantly for the given demographic category ($p < .05$).

through search engines. A 2004 study of America Online's query logs [4] found that the most popular query topics were shopping (13%), entertainment (13%), pornography (10%), computing (9%), health (5%), travel (5%), games (5%), and home (5%). In particular, popular search engine topics, such as pornography and health, are ones our participants reported they would avoid asking of their social networks, since they are too personal. Our participants also reported that religion, politics, dating, and financial issues were topics they were not comfortable asking their social networks about. The prevalence of technology questions in our dataset is likely due to the survey population, which consisted of employees at a technology company; we would expect this proportion to be lower for other populations.

Who Asked Which Questions

We explored how characteristics of the question asker, such as the asker's demographics and social network use, related to the types and topics of questions they asked. Table 4 breaks down topic and type accordingly.

Demographics

We found no significant gender differences in the types of questions asked. Gender had a greater impact on question topic, with men asking a higher proportion of technology-oriented questions (z = -20, p = .044), and women asking more home & family questions (z = -2.5, p = .013).

Age related to the type of questions people asked. Younger participants were more likely to ask invitation questions than the older age groups (χ^2(3, N=230)=13.4, p=.004). In contrast, younger participants were less likely to seek recommendations (χ^2(3, N=230)=9.7, p=.021). Age had no significant impact on question topic.

Social Network Use

We also investigated whether the social network used to post the question influenced question topic or type. Our participants reported asking a much higher proportion of technology questions on Twitter (z = -5.9, p < .001). On Facebook, participants were more likely to ask questions about home & family (z = -3.2, p = .001) and about entertainment (z = -2.8, p = .006).

To explore whether more frequent users of social networking tools asked different questions than less frequent users, we asked participants to self-report the frequency at which they updated their status message; those who updated once per week or more we characterized as frequent users, and those who updated their status less often than once per week as infrequent users. Infrequent users were more likely to ask questions related to rare events or special occurrences, such as travel (z = -1.8, p = .059), and health (z = -3.8, p < .001). The greater incidence of health questions may be due to infrequent users having different understandings of the norms and etiquette on such systems.

Motivation for Asking

Participants who reported having used their status message to ask a question answered a follow-up survey question requesting a free-text explanation of why they had chosen to satisfy their information need by asking their social network rather than (or in addition to) using a search engine. Table 5 shows common themes in the 242 reasons people gave, with specific responses exemplifying each.

Motivation	Percent	Example Survey Responses
Trust	24.8%	- Because I trust my friends more than I trust strangers. - People that I know are reputable.
Subjective questions	21.5%	- A search engine can provide data but not an opinion. - It has no definite answer, it's more about collecting views rather than finding specific info.
Belief search engine would not work	15.2%	- Because search engine technology doesn't work that well yet. - I'm pretty sure a search engine couldn't answer a question of that nature. - Because search engines don't have breaking news. - Search engines aren't updated often enough.
Specific audience	14.9%	- Friends with kids, first hand real experience. - Better visibility among expert users of SQL Server.
Connect socially	12.4%	- I wanted my friends to be aware that I was asking the question. - I wanted to ask the question but also express my frustration to my social network.
Answer speed	6.6%	- Quick response time, no formalities. - Needed information ASAP.
Context	5.4%	- Friends know my tastes. - Search engine is not personalizable.
Failed search	5.4%	- I tried searching and didn't get good results. - A quick search on the search engine didn't give me any useful results.
Easy	5.4%	- It's easier. Results are targeted… don't need to sift out the 'junk'. - There are too many choices on the web, I wanted something more filtered. - Didn't want to look through multiple search results for answers.
Answer quality	4.1%	- Human-vetted responses. - Better quality results some of the time.
No harm	3.3%	- No cost.
Fun	2.1%	- More fun.
Non-urgent	1.7%	- I didn't need an answer straight away.

Table 5. Survey respondents' motivations for asking their social network rather than (or in addition to) conducting a Web search. Some responses fell into multiple categories, so percentages total to more than 100% (out of 242 responses).

The most common reason to search socially, rather than through a search engine, was that participants had more *trust* in the responses provided by their friends. A belief that social networks were better than search engines for *subjective questions*, such as seeking opinions or recommendations, was also a common explanation.

Many respondents, however, also held a (sometimes incorrect) *belief that search would not work* for their question, even when they had not actually attempted to use a search engine. For example, of the 15.2% of participants who did not trust a search engine to answer their question, 24.3% suggested it would not be able to find up-to-date information on current events. A smaller percentage of

respondents had first turned to a search engine, but had *failed* in their attempt to find the information.

People also chose to post questions to their networks because they knew their networks formed a *specific audience* that they believed to be particularly knowledgeable about a topic, and because they wanted to *connect socially* with others by simultaneously advertising their current interests as well as fulfilling an information need. Many appreciated that their social network was familiar with additional *context*, such as knowledge of their location, family situation, or other preferences.

Some respondents perceived that asking their social network resulted in better *answer speed* and/or *answer quality* than asking a search engine. However, other respondents acknowledged that the social network might take longer to return a response, but that this was acceptable because their information need was *non-urgent.* Others preferred to ask their social network because it was *easy*; they felt that reading through a set of search results to find the most appropriate one was too cumbersome, and preferred to be delivered a pre-packaged answer by a friend.

Finally, some chose to ask their questions socially, rather than to a search engine, because they felt the former was *more fun*, and that there was *no harm* in trying, since updating one's status is a relatively low-cost interaction.

Many of these motivations could apply to Q&A sites, which are a more traditional way to ask questions online. The preference for using a social network rather than a Q&A site may be a trust issue; participants reported that they trust people in their network to help them answer questions (median = 4) significantly more so than they trust people on the internet that they do not know to answer questions (median = 3) (z = -8.82, $p < .001$).

THE QUESTIONS THAT GOT ANSWERED

In addition to providing information about question asking on social networks, participants also provided information about question answering. They shared with us their subjective experience with the speed and utility of the replies they received to their question, and provided information about when they themselves chose to answer and not answer questions that others had posted. Many participants reported having answered questions. Three-quarters (73.4%) had seen a question posted as a status message by another member of their network; of those, nearly all (93.4%) said they had answered such a question on at least one occasion. Here, we first examine factors affecting answer speed and utility, followed by an exploration of the factors that motivate question answering.

Perception of Answer Speed and Utility

All but 6.5% of questions shared via the survey received an answer. It is possible, however, that respondents were biased towards sharing examples with us that had received responses. Overall, the 93.5% who received a response reported that their questions were answered promptly; 24.3% received a response in 30 minutes or less, 42.8% in one hour or less, and 90.1% within one day.

Generally participants expected fast response times, and received slower responses than expected. A third (31%) expected a response within 15 minutes or less, but only 15.7% received one that quickly; 62.5% expected a response within one hour, but only 39.8% got one. Expectations and reality approached each other at the one day mark, with 88.9% of participants expecting a response within a day or less and 83.9% receiving one. Despite the discrepancy between expected and reported answer speed, getting a response within one day seemed acceptable to most people, with 89.3% reporting they were satisfied with the response time they experienced.

The responses gathered via a social network appear to be very valuable. When asked to characterize whether or not the responses they received were helpful, 69.3% of participants who received responses reported they found the responses helpful, while 30.7% reported receiving unhelpful responses.

We examined whether common question properties explored earlier in the paper, such as phrasing and question type, influenced the self-reported speed or utility of the responses received. We found that question length influenced response utility, with the questions that had fewer sentences receiving more useful responses than those with many sentences (r = -0.13); we found no correlation between question length and response speed. It may be that multi-sentence inquiries appear more similar to a "regular" status update and less like an actual question. The use of punctuation and scoping terms did not correlate strongly with reported response speed or utility.

Question type also influenced response utility, with rhetorical questions receiving a far smaller share of all helpful responses (5.6%) than of non-helpful ones (30.1%) (z = -5.0, $p < .001$); this may be because it is not possible to answer a question of this nature in a helpful manner, or because answerers do not perceive that the asker truly desires a response to this type of question. Response times were distributed unevenly by question type ($\chi^2(7, N=234)=14.8$, $p=.039$); the question types receiving the fastest responses were requests for factual knowledge, recommendations, and opinions, with 19.6%, 40.0%, and 22.7% of responses received within one hour or less, respectively, as compared to the average response rate within one hour of 12.5%. Question topic did not influence response time or utility.

We also explored whether demographic traits of the asker influenced answer speed and utility. Gender and age did not significantly influence either answer speed or helpfulness.

Finally, we explored whether the asker's social network habits, such as the network posted to or the frequency of updating one's status, affected the answers received. We found no difference in answer speed or utility regardless of

whether the question was posted to Facebook or Twitter. The frequency of using the social network holds more importance, however, with those who update their status frequently receiving faster responses ($z = -2.1$, $p = .033$) – 87.0% of frequent updaters reported receiving responses in one day or less, while only 64.5% of infrequent updaters received responses within one day.

Motivation for Answering (and Not Answering)

We asked a follow-up question to participants who reported having answered questions they saw posted in others' status messages, inquiring about what motivated them to respond to such requests. 408 respondents answered this question. Table 6 shows the categories of motivations to answer, the percent of responses in each, and example responses.

The most common motivation given for responding to a question was *altruism*. *Expertise* was the next biggest factor, with respondents being motivated because they felt they had special knowledge of the topic being asked about. Another factor influencing motivation to respond was *properties of the question* itself, including whether the question's topic is considered interesting, whether the question seems urgent, and whether the question is scoped to an audience the answerer considers himself part of.

The *nature of the relationship* with the asker was an important motivator, with closer friends more likely to get answers. The desire to *connect socially* with others also prompted responding to questions, in order to rekindle old friendships, maintain current ones, and create new ones.

Many people were motivated to answer questions because they had *free time*; in these cases, they would answer if the question was quick to reply to, and because it entertained them to do so.

Some people were motivated to answer by a feeling that they were earning *social capital*, *i.e.*, if they answered others' questions, their own might be more likely to receive replies in the future. Similarly, some answered out of a feeling of *obligation*, because they had received help in the past or because they felt indebted to a particular community. Finally, *humor* and *ego* were also motivating factors that compelled some people to answer questions.

We also asked participants to describe why they would choose *not* to answer status-message questions. We received 224 free-text responses on this issue. The most common reason for not answering was, not surprisingly, not knowing the answer (42.0%). The public nature of answering seemed to factor into how confident people had to be in their answer to be willing to volunteer it. For example, one respondent commented, "I don't feel like I know enough and [am] afraid to be wrong in public," and another noted, "[I] don't want to be on record as an expert in anything I'm not."

Private topics were another demotivator (24.1%) ("too personal for public profile"), although some indicated that they might respond privately to such inquiries rather than responding within the social networking tool ("Not in a public setting. I might send an individual response in email."). Some respondents identified more specifically what topics were considered private; the most common topics mentioned were religion ("I don't like talking religion with those outside my circle"), politics ("questions which might be sensitive (like political opinions)"), sex and dating ("I'm not comfortable publically answering sexual questions in a public forum."), personal details about friends or family ("[questions requiring] details on my children that I may not want in a public forum"), money ("requests for cash"), and health ("if you want a health opinion, visit your doctor").

Motivation	Percent	Example Survey Responses
Altruism	37.0%	- Just trying to be helpful. - Being friendly. - Social goodness.
Expertise	31.9%	- If I'm an expert in the area. - [It depends on] my knowledge of the subject that the question refers to.
Properties of question	15.4%	- Interest in the topic. - [If] it is … time sensitive. - Is it directed at me?
Nature of relationship	13.7%	- If I know and like the person. - If I know the person well
Connect socially	13.5%	- Connect with others. - Keeps my network alive.
Free time	12.3%	- Boredom/procrastination. - It's fun to answer.
Social capital	10.5%	- Favor marketplace. - It creates social currency. - I will get help when I need it myself.
Obligation	5.4%	- A tit-for-tat. - It's part of being in a community of trusted people.
Humor	3.7%	- Thinking I might have a witty response.
Ego	3.4%	- Being wanted. - Looking good. - Wish to seem knowledgeable.

Table 6. Reported motivations for answering questions seen in network members' status messages (out of 408 responses). Some responses fell into multiple categories.

Many indicated they would prefer a face-to-face or personal request, and ignored questions directed broadly to the network-at-large, as indicated by comments like, "I would rather be asked directly," and, "My lack of response is motivated by the impersonal nature of the questions."

DISCUSSION

We have presented detailed data from a survey of 624 Facebook and Twitter users on the topic of asking and answering questions via social network status messages. This data provides valuable insights into the motivations for social searching behavior; however, when interpreting these findings, it is important to bear in mind the limitations of our unusually tech-savvy survey demographic and of self-report data in general. Supplementing this survey data with objective log-based studies or with interviews to explore specific findings in greater depth are promising directions for future work. In this section, we reflect on what our

findings suggest about the tradeoffs in satisfying information needs through more traditional online tools, such as search engines and Q&A sites, versus via online social networks. We then discuss the implications of our findings for the design of improved search technologies.

Tradeoffs of Social Networks, Search Engines, and Q&A

A variety of online tools, notably search engines and Q&A sites, are designed specifically to help users satisfy information needs. However, our survey found that many people are turning to social networking tools for this purpose, even though such tools were designed to facilitate social connectedness and awareness rather than information-seeking. Our findings suggest there are several factors differentiating information seeking using "traditional" online sources versus social networks:

Type of Information Need: The strength of social networks seems to be in their ability to provide answers to questions of a subjective nature; our respondents especially preferred social sites over search engines for opinion and recommendation questions. However, social networks were seen as inappropriate for questions on overly personal topics, such as health, dating, religion, and finance – Q&A sites may be more attractive to users who have subjective questions on highly personal topics, since they afford greater anonyminity, while search engines' strengths are in providing more objective answers on a variety of personal and impersonal topics.

Trust: Although Q&A sites and the blogs and rating sites indexed by search engines provide subjective data such as reviews and recommendations, people tend to trust the opinions of people they know rather than the opinions of strangers, motivating them to turn to their networks.

Response Time: Although search engines have near-instantaneous response times, obtaining a timely response requires entering an optimal query, which may be difficult in some situations. Responses on social networks were often received within less than an hour of posting (40% in our sample), and nearly all questions received responses within one day. Response times and rates reported by our survey participants were comparable to or faster than those reported for Q&A sites (*e.g.*, [16, 30]). For non-urgent information needs, particularly those where forming an optimal query is challenging, waiting a few minutes or hours for an answer seems acceptable. Our findings also suggest that properties of the question influence response speed. For example, shorter questions and questions asking for subjective, rather than objective, answers received quicker responses; by carefully tailoring the questions they pose to social networks, users may be able to obtain answers more quickly.

Effort: Questioning in natural language, rather than figuring out optimal queries for a search engine, lowers the barrier for asking questions on social networks. The short character limit on social network status messages helps ensure such inquiries are low-effort, whereas the longer messages offered by Q&A sites suggest they are appropriate for more intricate questions. Receiving a small number of answers, rather than needing to triage a large set of search results, was particularly appealing to our respondents.

Personalization: Respondents appreciated that members of their network knew a great deal about their backgrounds and preferences, and were thus able to provide answers tailored based on this context. Search engines and Q&A sites do not generally offer this capability. Personalized search algorithms (*e.g.*, [27]) cannot yet achieve the same degree of personalization as a close friend.

Secondary Benefits: In addition to achieving their primary goal of satisfying an information need, asking a question via social networking tools offered two additional types of benefits not present in search engines and Q&A sites. First, by posting a question, participants were also advertising their current interests and activities to their network, creating social awareness. Second, participants found visiting social networking sites to be fun and pleasurable.

Implications for Design

Considering why people use social tools offers insights into improving search engines. For certain question types, notably recommendations or opinions, on impersonal topics such as dining, travel, shopping, and entertainment, it may be beneficial for search engines to return not only traditional results, but also results from the user's social network. Such results could be obtained by searching through the profiles of a user's friends or through their friends' past status updates in order to return search results that include suggestions of specific friends who might be knowledgeable about a topic. Alternatively, the search engine could automatically post a status update on behalf of the user, and integrate any responses received through the social network into the search results as they arrive. This latter approach would be most effective if the speed of receiving social answers could be optimized, as may be possible through careful question phrasing. Further study would be needed to validate these approaches.

Respondents also seemed to turn away from search engines due to the effort of triaging large numbers of results. Many search engines have begun to offer "instant answer" features (*i.e.*, typing a query such as "Atlanta weather" into many search engines returns a local weather forecast, rather than a set of hyperlinked results). Our findings suggest that it may benefit search engines to expand the range of question types for which instant answers are offered.

Survey participants appreciated the context inherent in interactions with their social network. This finding suggests that enhancing the effectiveness of personalized search algorithms is an important area of further study for improving the usability of search engines.

Finally, participants enjoyed the fun and social aspects of posing questions to their networks. By incorporating social features directly into search engines, such as the ability to

actively collaborate with others while searching (*e.g.*, [22]), search engines may be able to turn a mundane experience into one that provides both intellectual and social benefits.

CONCLUSION

We investigated question asking behavior on popular social networking services by surveying 624 people on their use of these services, the types of questions they have asked, and the types of questions they have answered, as well as their motivations for using social networks in this manner. Our analysis explored the relationships between answer speed and quality, properties of participants' questions (type, topic, and phrasing), and properties of participants themselves (age, gender, and social network use habits).

We are now in the process of diving deeper into why people turn to social networks rather than search engines or Q&A sites for certain classes of information needs, and the factors affecting the outcome of these inquiries. By looking at the behavior from many directions, including via additional surveys, detailed interviews, and controlled studies, we hope to gain a rich understanding that will pave the way for a new generation of search tools that merge the speed and breadth of search engines with the engagement, trustworthiness and personalization offered by social media.

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