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Motivations for Answering Questions Online

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Abstract

The World Wide Web is not merely an information system; it is a social space where people interact. One central form of interaction consists of asking and answering questions. This chapter focuses on question answering sites and examines why people provide answers to others, usually to complete strangers, with very few – if any – apparent incentives. We provide an overview of the structural characteristics of question answering sites that shed light on the nature of their activity and persistence, followed by an explanation of several intrinsic motivations, such as perceived ownership, commitment to a social role and various affective motivations for participation. To these are added a variety of extrinsic factors, including ratings, monetary incentives and social gratification. We explain why free riding and lurking are an organic part of question answering sites and conclude by offering several directions for future research.

Keywords: question answering sites, information sharing, information markets, information exchanges, knowledge sharing, motivations, incentives, Yahoo! Answers, Google Answers

Introduction

The World Wide Web has become our first stop for finding answers to questions. It offers a multitude of search options and information resources as well as spaces where anyone can post questions for others to answer. Resources such as these can help us find a good restaurant for dinner, debug our computer program or discover a new method for getting in shape. It seems only natural that people would post questions on online question answering services. Research on the voluntary provision of answers, often of high quality, will enhance our understanding of a phenomenon that ought not be taken for granted. This chapter focuses on question answering sites and examines what motivates people to provide answers to others, usually total strangers.

To locate information, we *search* and *browse* (Rice et al., 2001). We use search engines to locate web pages conforming to the set of search terms we specify. We browse collections of resources or web links to understand the types of information available and to find topically-relevant content. These strategies for locating information are asynchronous – one may only search or browse for information after it has been recorded. Furthermore, they tend to avoid direct person-to-person communication.

The above information retrieval techniques have certain limitations. To search or browse for information, we must first know the vocabulary that describes our question or situation. We may even need to know more than one language. Search results are usually not tailored specifically to the asker's specifications, may contain vast amounts of unfiltered information and often answer a question that is at best only vaguely related to the original one. Of course, if such information has not yet been recorded online, it cannot be retrieved through these methods.

To address these shortcomings, various online systems allow people to ask questions of one another directly. Usenet, email lists and discussion forums are all established technologies that allow communities of interest to share questions and answers. More recently, the question asking process has been formalized into *knowledge markets* or *question asking sites* such as Yahoo! Answers and Google Answers. These sites vary in membership, goals and technologies, but all provide interfaces for members to broadcast questions to the community, as well as methods for finding and answering other members' questions. Figure 1 shows a sample screen shot of Yahoo! Answers with the motto "Ask, Answer, Discover." Table 1 lists some of the question answering sites currently available. The number of available sites shows that this type of activity is very popular.

Question asking sites have risen in popularity in recent years. In 2002, the Korean web portal www.naver.com launched a question and answer site that as of 2006 contained more than 37 million questions and answers integrated with search results (Ihlwan et al., 2006). This platform helped Naver become the top website in South Korea (alexa.com, as of July 5, 2007) and has forced competitors such as Yahoo! to launch similar services to compete with it.

The usefulness of question asking online is intimately linked to the responsiveness and knowledge of other users who are willing to take time to answer questions. It is not obvious, however, why people would dedicate their time and energy freely to answer questions posed by others. Why do these sites work? What has motivated Koreans to ask and answer 37 million questions online?

In this chapter, we attempt to respond to these questions, presenting perspectives from psychology and communications. We begin by describing question asking sites, then provide some theories on information sharing and

highlights of recent research, continuing with a discussion of free riding and lurking and concluding with several ideas for future research.

Question Asking Online

When people need to find information, they may adopt one of two principal strategies: Searching or asking. Searching for information means using a web search engine or directory, querying a database or visiting a library. Searching is the act of seeking information within a resource. Asking, on the other hand, is the act of requesting assistance from another person and the result is the exchange of answers and comments.

Online technologies provide many platforms, such as discussion forums, email lists and websites, where people may ask questions and obtain answers from other people. These platforms provide access to a potentially large community with diverse or specialized knowledge. Users may receive help from people outside their own circle of acquaintances and ask questions irrespective of time or location. Addressing a large community increases the likelihood and speed of obtaining high quality multiple responses and viewpoints.

Several key dimensions define such communities, shedding light on the differences among them in terms of participation and responsiveness, participants' characteristics and the communities' success. Porter et al. (2004) suggested the following dimensions:

- **Purpose** – content of interaction
- **Place** – extent of technology mediation needed for interaction
- **Platform** – degree of synchronicity in interaction
- **Population** – pattern of interaction and strength of ties

- **Profit Model** –return on interaction

Wasko et al. (2004) proposed different characteristics to describe networks of practice, including:

- **Control** – degree of formal control and hierarchy
- **Channel** – communication channel used for interaction
- **Size** – number of members and postings
- **Access** –restricted or free
- **Participation** – self-determined or jointly determined by previous participants

The two approaches appear complementary except for their common Place and Channel dimensions. We propose several additional dimensions for researchers and designers of communities to consider:

- **Diversity** – Are members of the community demographically, geographically, economically or otherwise diverse?
- **Interface Design** – How do members ask questions? How are questions found by or routed to answerers?
- **Incentive Structure** – Are fees levied for asking questions? Are question answerers compensated? Are there other, non-financial incentives influencing the community?

Table 2 describes question answering sites according to the above dimensions, sketching a very large, loose and diverse group of people who interact informally and on an ad hoc basis. Despite this somewhat vague portrayal, question answering sites are very popular and stable. Other types of communities may be characterized and compared using the same set of dimensions.

Various generalizations may be posited regarding question asking communities, one of which explains participation levels: Question asking sites are like most online communities in that their members follow a power law distribution in engagement or participation.¹ Most communities include a “long tail” of users who contribute little or nothing and a few members who perform most of the work. The power law distribution is often used to describe the structure of the web or of specific communities within it (Barabasi and Albert, 1999; Adamic, 2000; Adamic et al., 2003; Ravid and Rafaeli, 2004), an activity pattern that obtains regarding question asking and answering sites as well (Raban, 2007). The power law also carries over to other aspects of question answering communities, such as answer receipt time, wherein most answers are provided very quickly (Kalman et al., 2006).

The common explanation for the stability of power law networks is the strength of weak ties (SWT) within it (Granovetter, 1983). This is also known as the SWT theory. In fact, weak ties are known for providing better access to information and resources beyond those available in one’s close social circle. It is the central explanation for the diffusion of innovations and the spread of ideas or information (Rogers, 1995). According to SWT theory, people have friends and acquaintances. The friends group is a close knit group of people who mostly know each other, while acquaintances are people we know but who do not know each other. The acquaintances with whom we have weak ties form bridges among the close knit groups of friends and consequently play a very important role in maintaining the network and facilitating the spread of information across it. The weak ties form bridges among people with different roles and enable cognitive flexibility.

The power law nature of online community activity raises generalizations that we may use to characterize the functioning of question answering sites, supplementing the characteristics suggested earlier in this section:

- A critical mass of active participants is needed to sustain an online community (Markus, 1990; Marwell and Oliver, 1993).
- An online community is vulnerable to the desertion of active members but resistant to departure of infrequent users because much of its strength derives from weak ties among members (Granovetter, 1983; Constant et al., 1996).
- It is important to have community leaders and persons playing other social roles. The success of active community members leads to the success of the community as a whole (Welser et al., 2007).

The activity patterns and structural attributes of question answering sites have been generalized in academic research. It follows that motivations for contributing answers may also be generalized for such sites according to various studies reported for specific systems. The following sections describe a variety of studies on intrinsic and extrinsic motivations for answering questions online.

Intrinsic Motivations

Some users choose to spend time answering others' questions and some do not. Those who share are not only spending their own time to help someone else but are also distributing information of some value. These factors may be thought of as costs (in the economic sense) that decrease individuals' tendencies to share information freely.

As indicated, people do not participate equally in information sharing activities. Furthermore, there are costs associated with sharing, such as loss of exclusivity on information and investment of time and effort. Thus, it is likely that question answering behavior may be explained by positive motivation. For example, people might answer questions to gain a sense of satisfaction for having helped someone or a sense of reciprocity for having returned a favor.

The sense of personal ownership of one's knowledge has been investigated as a possible explanation for individual information sharing. Constant et al. (1994) explained information sharing according to the social exchange theory, that predicts sharing based on self-interest and reciprocity. The study compared inclinations to share personal expertise and computer software, demonstrating that expertise was perceived to be privately owned and self-interest the main driver for sharing it. In other words, the study found that personal ownership supports sharing of tacit knowledge or expertise more than organizational ownership. Further support for these findings was established in later studies as well (Jarvenpaa and Staples, 2000, 2001). The findings contrast with the general consensus in knowledge management literature that considers sharing of tacit knowledge to be the chief difficulty of knowledge sharing (Davenport and Prusak, 1998). This contrast may well be a manifestation of the lack of motivation to contribute to databases (knowledge management systems) versus willingness to share information with other people. Subsequent research showed that motivation for sharing is more intrinsic and relies upon subjective preference (Raban and Rafaeli, 2007). Sharing based on personal norms and motivation will be more stable than sharing induced by organizational culture.

Research has accorded considerable attention to online discussion forums, such as Usenet groups, at which threaded conversations take place. As explained earlier, online forums and groups are communities in which social structures emerge, as evidenced by the variety of significant social roles identified therein: Local experts, answer people, conversationalists, fans, discussion artists, flame warriors and trolls (Golder, 2003; Burkhalter and Smith, 2004; Herring, 2004; Haythornthwaite and Hagar, 2005; Turner et al., 2005). Answer people, of course, are of particular interest in this chapter. In a recent study of structural and behavioral characteristics, answer people were described as more responsive than initiators or discussion people (Welser et al., 2007). They kept their answers fairly short and provided them to anyone who needed them. They answer because they enjoy answering, do not expect immediate reciprocity or other rewards and do not limit their helpfulness to specific people. This individual behavior is highly compatible with Wasko et al.'s (2004) description of the group as a whole. Furthermore, Usenet answer people may view their participation and the challenge of answering questions as a learning opportunity. While there is no evidence in the literature to support this proposition, it may constitute a subject for future research.

Overall, intrinsic motivations refer to retention of personal ownership even after providing answers, self-interest – at times coupled with pro-social transformation, commitment to a perceived social role, enjoyment and feelings of gratitude and respect. Beyond these motivations, system design may provide additional, extrinsic motivation, as explained in the following section.

Extrinsic Motivations

People are not purely utilitarian – while they may enter non-commercial websites in response to a particular need, long-term use may depend on other factors. Usenet was an early form of question answering system that did not offer any kind of explicit incentive for participation. However, newer question and answer sites must compete for users' participation and have thus developed several incentives and rewards to generate interest and attract attention – a rare commodity in the age of information overload. Incentives that accumulate over time may also help encourage user persistence.

Extrinsic motivations are defined as those motivations stemming from factors outside the individual. For example, a person who is not intrinsically motivated to wash dishes might be persuaded to do so for a large sum of money or in exchange for profuse thanks. Online communities have many options for motivating members in this way. For example, websites might recognize members' contributions by offering them points or induce competitive thoughts by showing members how they compare with one another (Harper et al., 2007), using designs such as leader boards.

Yahoo! Answers is one example of a question answering site that uses extrinsic motivations heavily to invite user contributions and increase the quality of answers. Yahoo! designed several features for the sole purpose of shaping user behavior in this way. First, members earn points reflecting their reputation in the system by logging in, answering questions and by providing answers voted as “best answers” by other members. Questions may be voted as “interesting” by members to boost their visibility and answers may be flagged as inappropriate to discourage trolling or mean-spirited posts.

Another prominent site, Google Answers,ⁱⁱ employed a very different approach, creating a marketplace wherein askers offered some amount of money (\$2-\$200) in exchange for answers to their questions. Especially good answers might earn additional money in the form of tips. Google Answers also provided non-monetary incentives by offering a rating and feedback mechanism.

Early studies of Google Answers found that monetary compensation predicted the level of effort (Edelman, 2004; Regner, 2005), but subsequent research demonstrated that frequent answerers were motivated more by social incentives – including conversations between users, ratings or answer quality and tips (Raban, 2007; Rafaeli et al., 2007) – than occasional answerers whose activity was explained on a more economic basis. This suggests that monetary incentives are important as enticement to initiate participation, while social motivations lead to persistence.

In general, question asking communities are formed thanks to two complementary human instincts: The need to ask questions and the inclination of answer people to contribute their knowledge to others. The natural structure that emerges is a power law distribution of activity that helps sustain the community, building on the strength of weak ties and on the activity patterns of highly active answer people. Further support is accorded by the social activity that emerges in these public spaces and by competition for social status. As monetary rewards may also be detrimental to social activity (Heyman and Ariely, 2004), the overall incentive system should be designed with care.

Participation and Free Riding

Answers provided at question asking sites are a form of public good, as they are freely available to the general public for unlimited consumption. A certain contributor critical mass and contribution quality level are vital for the production and persistence of public goods (Macy, 1990; Marwell and Oliver, 1993; Constant et al., 1994). As such, free riders – those who take from a resource without contributing to it – may constitute a threat to the viability of information (Adar and Huberman, 2000). The result, as discussed above, is that a small fraction of people is active and the large majority is mostly inactive. Apparently, free riders are a natural part of web participation in general and of question answering sites in particular. Hence there is no reason to expect balanced contributions by all visitors.

While free riding is common in question answering sites, it need not be problematic. In fact, by adopting a slightly different perspective, we may even consider free riding beneficial to the community:

- It is better for the group if many members free ride than if they contribute negatively (poor knowledge, unexamined sources etc.). Negative contributions can create an intolerable overload of useless information.
- Information sought tends to be unique. A free rider on a host of questions may become a contributor in a particular question. “Self-filtration” actually constitutes good citizenship and professional ethics in this context.
- Free riders are virtually invisible in online systems and tend to be ignored. They are not perceived as free riders.
- Connectivity does not mean that everyone who is connected actually has information to contribute. Yet these free riders have a unique learning opportunity and may feel as though they are part of a community (Fulk et al., 1996).

What was previously called free riding may be better described as *lurking* with regard to information sharing (Preece et al., 2004; Rafaeli et al., 2004). Lurking is passive participation that enables users to get to know the community by learning the social norms, identifying the active participants, adjusting to the pace of communication and building trust before switching to active participation. It thus enables the building of social capital, which in turn will encourage lurkers to become active in information sharing. Subsequent research (Soroka and Rafaeli, 2006) identified cultural capital as a promoter of de-lurking. Cultural capital, an extension and enhancement of the idea of social capital, originates in skills and familiarity with cultural codes such as linguistic features, in-jokes or expressions and – in the context of online spaces – netiquette, special language and identification of behavioral patterns (welcome to newcomers, dealing with undesirable events etc.).

Paradoxically, perhaps, the strong sense of belonging to a network or community may raise another kind of impediment to information sharing, namely diffusion of responsibility. The perception of some “public domain” knowledge may diminish a person’s need or obligation to share information that is considered widely obtainable regardless of its objective availability. Furthermore, knowing they are part of a group of equally-knowledgeable peers, people may exhibit diffusion of responsibility and refrain from sharing (Latane and Darley, 1968; Latane and Rodin, 1969). In fact, experimental work revealed this effect in the use of email for requesting help (Barron and Yechiam, 2002). On the other hand, people who are experts in their respective fields and believe that they are the only source for particular information may be more willing to share it, perhaps because of personal benefits such as gratitude and improved reputation, again highlighting the

intrinsic motivations. System designers are advised to consider the perception of ownership of information as an important motivator for providing answers as well as a remedy for diffusion of responsibility.

Directions for Future Research

This chapter outlined the ways that new media enable us to reach out and seek answers far beyond our physical environment. We have begun to explore why complete strangers take the trouble to offer their personal knowledge in response to questions and provided evidence that some of the phenomena often referred to as problems are, in fact, inherent in the system structure and usually do not hinder participation. Nevertheless, many questions remain open and await further research.

People participate in information sharing sites largely because of intrinsic motivations such as their perception of the system's value – the sum of other participants' knowledge and the resources at their disposal are larger than those of the individual participant. Perceived value may explain the choice of one system over another, but it is unclear whether people use such value judgment to select among systems or whether other factors are of greater significance. Future research could help us to answer these questions.

It is also possible that people use perceptions of social qualities to determine their extent of participation. This is known as online social cognition (Rafaeli et al., 2005): New entrants may perceive the system to host like-minded people or may feel that they can add value to the system by contributing their knowledge. Social cognition has not yet been researched as an antecedent for participation in online question asking sites.

Another concept requiring further research is the effect of prompting (Rafaeli and Raban, 2005). Reading others' questions may prompt answer people to offer

solutions that would otherwise remain undisclosed. Prompting by people is assumed to be more conducive to answering than is prompting by a database or some procedural prompt and may have important implications for organizational knowledge management. The earlier cited study that identified answer people as responders more than initiators provides further support for this proposition.

This chapter summarized a variety of studies and research methodologies, as shown in Table 3. It is important to triangulate findings according to different methodologies. Combining several incentives into one model and testing the interactions among the different explaining factors could prove to be a significant step forward. We may consider a model for either intrinsic or extrinsic motivations or one that examines interactions between intrinsic and extrinsic motivations. Apparently, the motivations behind the provision of answers cannot be discerned by simply posting a question.

Figure 1: A screen shot of Yahoo! Answers

YAHOO! ANSWERS Welcome, doritge [Sign Out, My Account] [Answers Home](#) - [Forum](#) - [Blog](#) - [Help](#)

ask.

Can't find it with search? **Ask**

[Post Question](#)

answer.

Share knowledge
Help others
Earn points

What people think of Answers
How does it work?

discover.

**be a better
Techie**

see
**Computers
& Internet**

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What's Being Served During Restaurant Week?

It's Restaurant Week here in New York, and for me that means a chance to get out of my budget dining rut for a few days. Restaurant Week is an event that takes place in a number of cities around the country each year. Participating restaurants, usually of the high class variety, offer a...

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★ In [Drama](#) - Asked by [Kate](#) - 6 seconds ago
- Deathly Hallows question about Lupin? (Spoilers)?**
★ In [Books & Authors](#) - Asked by [regina](#) - 16 seconds ago
- How much would u estimate a ticket for violator driving plus driving with no lights on would be? In California**
★ In [Commuting](#) - Asked by [Kim Andie](#) - 18 seconds ago
- Ideas to brighten up my Monday?**
★ In [South Africa](#) - Asked by [mr.mars-"H"-mallow](#) - 20 seconds ago
- Advertising does not support environmental consciousness.?**
★ In [General - Advertising & Marketing](#) - Asked by [saffy](#) - 23 seconds ago

Table 1: Answer Sites

Free Sites

Able2Know	http://www.able2know.com/
AllExperts	http://www.allexperts.com/
Answerbag	http://www.answerbag.com/
Ask A Librarian	http://www.loc.gov/rr/askalib/
AskMe Helpdesk	http://www.askmehelpdesk.com/
Askville	http://askville.amazon.com/
Dizzay	http://www.dizzay.com/
Fluther	http://www.fluther.com/
Grupthink	http://www.grupthink.com/

Pay Sites

ExpertBee	http://expertbee.com/
ExpertsExchange	https://www.experts-exchange.com/
JustAnswer	http://www.justanswer.com/
Kasamba	http://www.kasamba.com/
UClue	http://uclue.com/

Free Sites

KnowBrainers	http://www.knowbrainers.com/
LinkedIn Answers	http://www.linkedin.com/answers
Live QnA	http://qna.live.com/
LycosIQ	http://iq.lycos.co.uk/
Naver	http://www.naver.com
NowNow	http://nownow.com/
Oyogi	http://oyogi.com/
PointAsk	http://www.pointask.com/
Rediff QnA	http://qna.rediff.com/
Say-so	http://www.say-so.org/
Simply Explained	http://simplyexplained.com/
The Answer Ban	http://www.theanswerbank.co.uk/
Trulia Voices	http://www.trulia.com/voices/
What Should I Say	http://whatshouldisay.com/
WikiAnswers	http://wiki.answers.com/
Wis	http://wis.dm/
Wondir	http://www.wondir.com/
Yahoo! Answers	http://answers.yahoo.com/
Yedda	http://yedda.com/

Pay Sites**Table 2: Answer Site Features**

Community	Question Answering Sites
Feature	
Purpose	Answering ad hoc questions
Place	The web
Platform	Asynchronous, may require some research
Population	Weak ties
Profit model	Gratitude, status, occasional payment

Control	No formal control, no formal hierarchy
Size	Unlimited, scale-free
Access	Unrestricted
Participation	Self-determined
Diversity	Highly diverse, only language can constitute barrier
Interface design	Free text, search option usually offered
Incentive structure	Quality ratings, people ratings, payment, social gratification

Table 3: Intrinsic and Extrinsic Motivations for Answering Questions Online

Intrinsic Motivations	Extrinsic Motivations
Perception of value	Access to technology
Interaction	Generalized exchange
Online social cognition	Reputation
Information ownership	Status
Reciprocity	Norms
Gratitude	Communality
	Payment
	Social/Cultural capital

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ⁱ Ross Mayfield coined the phrase “power law of participation,” placing common online activities such as reading, commenting and refactoring on a power curve to illustrate what fraction of a community will contribute what sorts of work.

http://ross.typepad.com/blog/2006/04/power_law_of_pa.html

ⁱⁱ Google Answers shut down in Fall 2006 for undisclosed reasons. It was a thriving community, as evidenced by members’ postings following announcement of the site’s impending closure.