

# USER MOTIVATION AND EXPECTATION FOR ASKING A QUESTION IN ONLINE Q&A SERVICES

By

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A Dissertation Submitted to the  
Graduate School-New Brunswick  
Rutgers, The State University of New Jersey  
in partial fulfillment of the requirements

For the Degree of

Doctor of Philosophy

Graduate Program in Communication, Information and Library Studies

Written under the direction of

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New Brunswick, New Jersey

October, 2014

## ABSTRACT OF THE DISSERTATION

### USER MOTIVATION AND EXPECTATION FOR ASKING A QUESTION IN ONLINE Q&A SERVICES

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Online Q&A services are online information sources where people identify their information need, formulate the need in natural language, and interact with one another to receive answers to satisfy their needs. Even though in recent years online Q&A has grown considerably in popularity and impacted people's information-seeking behaviors, we still have little understanding of what motivates people to ask a question and what they expect from others with respect to their answers to judge information quality in the online Q&A environments. The purpose of the dissertation is to understand the motivations and expectations behind questions asking of unknown people in online Q&A services. Therefore, Yahoo! Answers and WikiAnswers were selected as the test beds in the study because these online Q&A services allow people to interact with most likely unknown people via the question-answering processes, yet provide different features of how answers are given to a question. Three research questions are addressed: (1) motivation: what motivates people to ask a question that address their needs in Yahoo! Answers and WikiAnswers?; (2) Expectation: what are an asker's expectations from other users to fulfill his or her needs when asking questions in Yahoo! Answers and

WikiAnswers?; (3) relationship: how do motivations of asking a question relate to expectations of answer content in Yahoo! Answers and WikiAnswers?; and (4) comparison: To what extent are motivations, expectations, and the relationship between motivations and expectations different and/or similar between Yahoo! Answers and WikiAnswers?

Cognitive needs such as finding factual information or seeking others' opinion or advice were found as the most significant motivational factor that drives people to ask a question. Yet, it was found that other motivational factors (e.g., tension free needs) also played an important role in user motivations for asking a question, depending on peoples' unique and contextual situations. It was found that when asking a question in online Q&A services, three main expectations were common: (1) looking for quick responses; (2) looking for additional or alternative information; and (3) looking for accurate or complete information. Additionally, dynamic relationships between different motivations and expectations for asking a question to seek contextual information to satisfy their unique situation are presented. The study also identified that there were incidents in which people have more than one motivation and/or expectation for asking a question.

Understanding user motivations and expectations could provide a general framework of conceptualizing different contexts and situations of information needs that drive people into human-to-human interactions for seeking information within an online Q&A context. The findings from the dissertation have several implications not only to develop better question-answering processes in online Q&A environments, but also to contribute to gain insights into understanding of online information seeking behaviors.

## ACKNOWLEDGEMENTS

First and foremost, I would like to thank my advisor, Dr. Chirag Shah for his invaluable advice and guidance for my dissertation study. I would not be able to finish my work without his unconditional supports and encouragements at the every stage of the dissertation processes. His supervision and mentorship has always improved my academic achievements, and also influenced personal and professional developments.

Moreover, I would like to thank my committee members: Dr. Nicholas Belkin, Dr. Marie Radford, and Dr. Jaime Teevan. Their time and efforts in providing me with their insightful suggestions and feedback are much appreciated for my dissertation.

I would also express the depth of my gratitude to my colleagues and InfoSeeking group members: Punit Dadlani, Vanessa Kitzie, Dr. Roberto Gonzalez, Chathra Hendahewa, Ziad Matini, Dong Ho Choi, Kevin Albertson, and Serife Uzun, who have provided such integral academic and social supports for completing my dissertation works. Especially, I want to thank Vanessa Kitzie for her great supports and collaborative works. I am very fortunate that I have worked with her in various research projects.

Many thanks also go to my dearest family. My mother, father, and sister have provided me love, kindness, and support. Additionally, thanks to my new family, my father-in-law and mother-in-law for their heartfelt supports

Last, but not the least, I express my sincere gratitude to my wife, Miso. She is the person who has always believed in me, providing unconditional love and support for not only my dissertation work, but also my life. Without her, this dissertation could not been done.

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## CHAPTER 1: INTRODUCTION

### 1.1. Background

Asking a question represents an innate information seeking behavior that addresses a condition of inadequacy in an asker's knowledge, defined as "genuine doubt" (CP5.443)<sup>1</sup>. While an information need is "a cause of information seeking" (Case, 2002, p.80), questioning is a formation of an information need (Taylor, 1968) where an asker is aware of his or her anomalous state of knowledge<sup>2</sup> within a problematic situation (Belkin, 1980; Belkin et al., 1982). Thus, asking a question is a kind of information behavior, or "the purposive seeking for information as a consequence of a need to satisfy some goal" (Wilson, 2000, p.49), and information acquired through questioning becomes the meaningful sources that help solve an asker's problem(s) (Yang, 1997) and make sense of his or her world (Dervin, 1992).

Given the fact that asking a question can be conceptualized as a purposive and active process of seeking information, previous research in the Library and Information Science (LIS) field attempted to investigate how and why people ask a question (see Mackay, 1960; Taylor, 1962, 1968). In addition, the concept of questioning and its related behaviors (Taylor, 1962, 1968) has been adopted to develop user-centered

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<sup>1</sup> As is common in scholarship of Charles Sanders Peirce, citations from Peirce (1931-1958) are identified by volume and paragraph number.

<sup>2</sup> Belkin (1980) and Belkin and his colleagues (1982) proposed the information user's anomalous state of knowledge (ASK), which stated that "an information need arises from a recognized anomaly in the user's state of knowledge concerning some topic or situation and that, in general, the user is unable to specify precisely what is needed to resolve that anomaly" (Belkin et al., 1982, p.62). ASK assists in understanding the user's information need and its change over the information seeking process, as well as conceptualizing the user's knowledge and understanding of the problem.

theoretical frameworks of information seeking behavior to understand contexts of information seeking and use, information seeking processes, and interactions with information systems (see Belkin, 1980; Kuhlthau, 1991; Markey, 1981 for example).

During the past few decades, advanced information technologies and systems have emerged to help people seek information. In conjunction with these developments, the Internet and the World Wide Web have become important tools that people use to seek information to solve a specific problem, as well as to browse general resources to fulfill their everyday life information needs. Since the advent of the Internet and the Web, the number of online resources for information seekers has substantially increased (Levy et al., 1996). These resources provide new ways to “seek and distribute information and communicate with others” (Rice & Haythornthwaite, 2009, p.92), and also include online Q&A services which allow people to identify their information need, formulate the need in natural language, and interact with one another to receive answers to satisfy their information need. Harper et al. (2008) argue that online Q&A services are “purposefully designed to allow people to ask and respond to questions on a broad range of topics” (p.866).

Online Q&A services, unlike face-to-face Q&A services (e.g., reference service in libraries), are online information sources where people identify their information need, formulate the need in natural language, and interact with one another to receive answers to satisfy their information need in virtual environments. Examples of these services include machine- and human-driven Q&A. While machine-driven Q&A services are typically referred to as the systems for automatic extractions of answers (e.g., ask.com),

human-driven Q&A services are designed for receiving user-generated answers through interactions with other people (e.g., experts, non-experts, etc.) on either specialized topics or a broad range of topics. Expert-based online Q&A services including traditional online Q&A such as virtual reference services (VRS), facilitate the question-answering interaction with experts while peer-driven online Q&A services are constituted by interactions with either known or unknown people to seek and share information. Additionally, people have utilized other services that are not purposefully designed for question-answering interactions (e.g., Facebook, Twitter, etc.) in order to ask a question to their network. Table 1.1 provides various elements constituting different characteristics of question-answering services.

Table 1.1. Elements of question-answering services.

Element	Characteristics of question-answering services	
Answer generation	Machine-driven	Human-driven
Interaction	Peer	Expert
Location setting	Offline	Online
Medium	Mediated	Face-to-face
Network	Person-to-person	Person-to-group
Purpose	Designed for Q&A	Repurposed for Q&A
Relationship	Known	Unknown
Topic	General topics	Specialized topics

Although traditional expert-based online Q&A services are still available to assist information seekers, online community-based and collaborative-based Q&A services have enabled people to access these services more conveniently. Additionally, online Q&A services allow crowds or members of a community to answer questions, traditionally undertaken by reference librarians. These online Q&A services therefore allow people to have human-to-human interactions for seeking and sharing information,

i.e., Yahoo! Answers, while having the convenience of doing it virtually (Shah et al., 2009).

Unlike traditional information retrieval (IR) systems and other online sources (e.g., search engines) in which people use queries to obtain information from systems, online Q&A services enable computer-mediated interpersonal communication with other people through new information and communication technologies (ICT). These Q&A services encourage social interactions and relationships for seeking and sharing information. Thus, a successful interaction within online Q&A assumes that the asker clarifies what he or she wants to know and an answerer (or answerers) understands the asker's information need, and responds back to the asker's question in order to satisfy his or her information need.

## **1.2. Problem Statement**

As online Q&A has rapidly grown in popularity and impacted peoples' information-seeking behaviors, a rich body of research has emerged to understand various aspects of online Q&A services. This research focuses mainly on two areas (Shah et al., 2009): (1) user-based studies (e.g., motivations of answering questions, an asker's satisfaction, etc.) and (2) content-based studies (e.g., question type, question formulation, answer quality, etc.). One of the major aspects of user-based studies is to investigate user motivation and behavior (Gazan, 2011). However, most of this research has focused on what motivates people *to answer* a question (see Nam, Ackerman, & Adamic, 2009; Oh, 2012). Few studies have attempted to address what motivates people *ask* a question to unknown people in order for seeking information to satisfy their needs as

opposed to using machine-driven information sources (e.g., search engine) and interacting with an asker's known people via a variety of mediated-communication channels (e.g., email, IM, Facebook, etc.). Figure 1.1 shows the area focused in this dissertation in order to investigate online Q&A users' question-answering interactions with unknown people in the context of online Q&A.

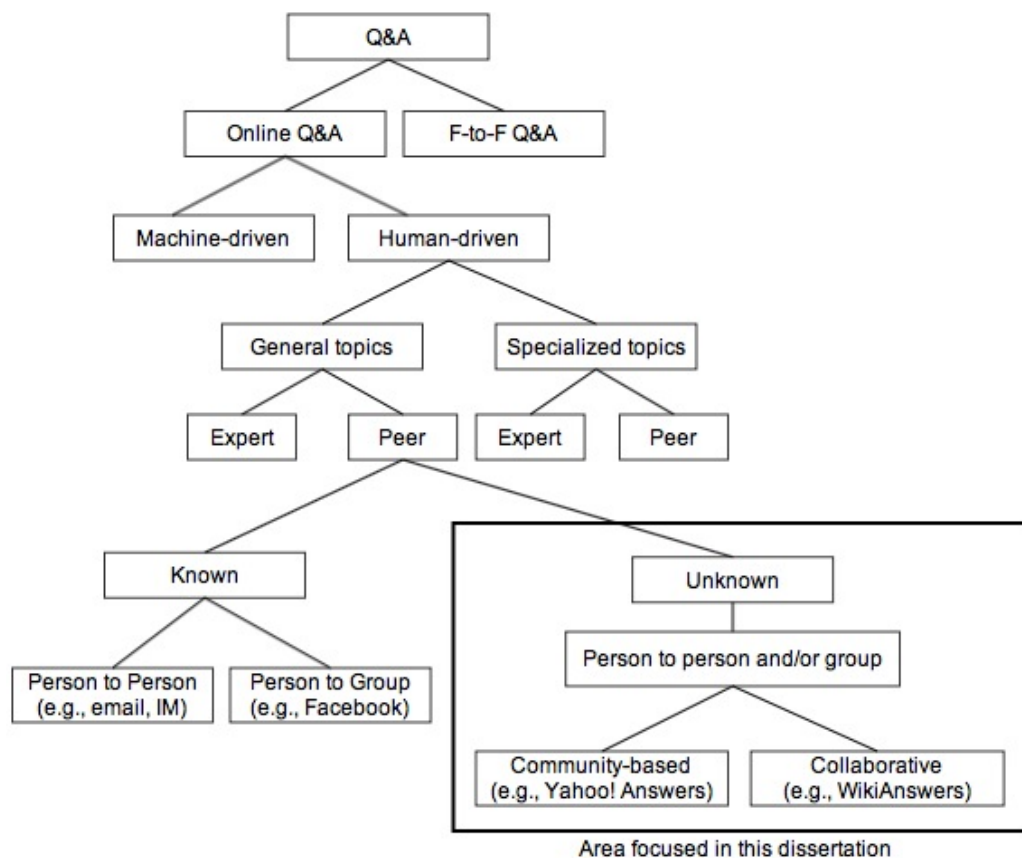


Figure 1.1. Area of online Q&A services focused in this dissertation.

The fact that online Q&A facilitates human-to-human interaction poses a key difference from search engines that facilitate a keyword-based search (e.g., Google). Rosenbaum and Shachaf (2010) argue that users' social interactions play a significant

role in seeking and sharing information within the dynamic of an online Q&A community. Since social interactions within the question-answering processes represent a critical feature of an online Q&A environment, Gazan (2011) argues that Rosenbaum and Shachaf's work (2010) provides "theoretical grounding for the idea that information exchange on [online Q&A] sites may not be motivated by classical notions of information retrieval and topical relevance" (p.2304). As online Q&A services are structured to provide information unique to an asker's situation and context, it would be essential to investigate the ways in which people use online Q&A for their information needs by a "person in situation oriented" approach (Vakkari, 1997).

Given that online Q&A provides a unique context that affects a user's information seeking process, the main focus of the study for understanding the online Q&A user's situation and context in their information seeking is to investigate motivations that lead people to interact with unknown people by asking a question within the context of online Q&A services. Going beyond the motivations behind asking a question, the study also investigates expectations that the askers have with respect to answers they get for their questions. As Hsu et al. (2010) argue, "an individual's motivation to perform a certain activity is a function of the expectation that he or she will be able to perform the activity and obtain the desired outcomes, and the personal value of all outcomes associated with that activity" (pp. 284-285). Therefore, it can be argued that motivation and expectation are correlated in achieving a specific goal or desirable outcome. Thus, it is also important to investigate what online Q&A users expect to receive with respect to the responses to their question, as well as how users' motivations and expectations are related to each



other when people ask a question to satisfy their information needs in online Q&A services.

### **1.3. Significance of the Research**

Understanding users' motivations behind asking a question as well as their expectations with respect to the responses is a critical endeavor that could provide a general framework of conceptualizing different contexts and situations of information needs (e.g., affective, social, personal, and cognitive states) that drive people to human-to-human interactions for seeking information within an online Q&A context. Conceptualization of contexts and situations of online Q&A user information seeking behavior will also contribute to developing a recommender system based on an asker's motivations and expectations. Thus, a research focus of an online Q&A user's behavioral processes by incorporating an asker's motivations and expectations will enable us to not only understand the contexts of use for online Q&A services to seek and share information, but also improve online Q&A service quality that helps provide satisfactory answers

Moreover, one of the main elements of study of online Q&A is to measure information relevance and quality. To do so, previous studies attempting to analyze information quality in online Q&A have paid attention to textual (e.g., length of the answer's content) and non-textual features (e.g., information from the answerer's profile) (see Shah & Pomerantz, 2010 for details of criteria employed for predicting information quality). Even though the recent research has also focused on new criteria (e.g., politeness, novelty, etc.) that can be employed to assess the quality of

information (Kim & Oh, 2009; Liu et al., 2008; Shah, Oh, & Oh, 2008; Shah & Pomerantz, 2010) in order to analyze how information satisfies an asker's need, there is still a lack of consideration for how the situational context behind asking a question affects quality judgments.

As Agichtein, Liu, and Bian (2009) suggest, personalized approaches for evaluating the quality of information tailored to an individual information seeker can result in improvements of assessing information quality in online Q&A. Mai (2013) argues, "for the quality of information to be assessed, it must mean something to somebody in some context" (p.765). Therefore, findings from this dissertation can help not only in identifying why and how users are engaged in information seeking within an online Q&A context to satisfy their information needs, but also in developing more comprehensive personalized approaches to deriving information relevance and satisfaction, including the motivations and expectations of users when seeking information. Since online Q&A users may want to "have what we can call the best textual means to his end" (Wilson, 1968, p.21), understanding the motivations and expectations of asking a question has applications for building on a framework of how people assess information, which includes not only question content, but also users' contexts (i.e., motivations, expectations) established by asking a question in a given situation.

## **CHAPTER 2: LITERATURE REVIEW**

The current literature review attempts to understand peoples' motivational factors and expectations within the process of questioning behaviors. Since the context of online Q&A is focused to investigate the factors influencing online Q&A users' questioning behaviors in the this dissertation, an introduction to a general overview of online Q&A services, as well as different types of services will be first provided. This will be followed by a review of online Q&A studies that have investigated users' questions. Following this, the next sections overview previous literature of users' motivations and expectations and identify gaps that the dissertation attempts to address.

### **2.1. Online Question-Answering (Q&A) Services**

Online Q&A services are designed to support people who exchange information via questioning and answering within online environments. Specifically, online Q&A services provide outlets for information retrieval where the user's information need is articulated by natural language questions posed to a community whose members can answer the question or even offer feedback on the given responses, resulting in a personalized set of answers generated via the collective wisdom of many (Bian et al., 2008). Since the early 2000s, online Q&A services have become popular on the Web and, according to a Hitwise report, there was an 889% increase in visits to online Q&A services between 2006 and 2008 within the U.S (Tatham, 2008).

Due to the popularity of online Q&A services as an information-seeking method and availability of data from them, different types of online Q&A services have emerged and are currently available for helping people fulfill their information needs in various

ways. There are four different types of online Q&A services: (1) community-based Q&A; (2) collaborative Q&A; (3) expert-based Q&A; and (4) social Q&A. This typology was generated based on the author's review and identification of the unique characteristics of different Q&A services, as well as informed by previous research studies focusing on online Q&A services (Choi, Kitzie, & Shah, 2012).

### **2.1.1. Community-based Q&A**

A community-based online Q&A service, sometimes referred to as a knowledge exchange community (Adamic et al., 2008), constitutes a user-driven environment where people searching for personalized answers post various types of questions to the Q&A community. A community-based online Q&A service consists of three components: (1) a mechanism for information seekers to submit questions in natural language; (2) answerers or responders who actively submit answers to questions; and (3) a community built around this exchange (Shah et al., 2009). Most community-based Q&A services also archive question-answer pairs and make them publicly available to allow people to search these pairs, therefore avoiding duplication of previously asked questions and answers, which saves time and effort for users (Bian et al., 2008). An example of a community-based Q&A service is Yahoo! Answers launched by Yahoo! on 2005, which has become by far the largest English-language based online Q&A site. According to Leibenluft (2007), more than 120 million users have joined Yahoo! Answers, and generated approximately 400 million answers to the questions.

Users' question-answering activities are driven by a variety of motivations within a community-based online Q&A service. Oh (2012) found the most influential factor

that motivated answerers to help others to satisfy information needs was altruism. Similar to Oh's (2012) findings, Nam et al. (2009) also found that altruism, as well as learning and competency were reported to be the most frequent motivational factors driving answerers to contribute knowledge in a community-based online Q&A service. Moreover, this type of service encourages users to participate in various activities not only by asking and answering, but also by commenting on questions and answers, rating the quality of the answers, and voting for a "Best Answer" (Kim et al., 2007).

### **2.1.2. Collaborative Q&A**

Unlike a community-based Q&A service where every question-answer pair is separately located in an archived thread list, collaborative Q&A services facilitate the ability to edit and improve the phrasing of a question and/or the answer to a given question over time via user collaboration. Examples of collaborative Q&A services are WikiAnswers and Wikipedia Reference Desk, which allow users to rephrase existing questions and answers in order to best address the information needs of both the asker and other community members interested in the same or similar question topic. Similar to a community-based online Q&A service, WikiAnswers also displays a list of similar questions that have already been asked on the site in order to assist in fulfilling an asker's information need (Bernhard & Gurevych, 2008).

### **2.1.3. Expert-based Q&A**

As in the first two Q&A services, an expert-based Q&A service allows users to ask questions and get direct responses from others. However, in this service, answers are

provided by a group of experts rather than an open community. Another factor that differentiates these types of sites from the other models is that many services include pricing systems, referred to as a price-based knowledge market (Chen et al., 2008) that allows the asker to specify the range of payment the answerer receives based on the asker's perceived value of the answer (i.e., Google Answers' payments ranged from \$2 to \$200 with a non-refundable listing fee of \$0.50). However, other expert-based Q&A models such as AllExperts allow an expert to voluntarily join the system and provide answers to questions based on his or her self-identified expertise sans fees. The Internet Public Library (IPL), an asynchronous digital reference service (Pomerantz et al., 2004), can also be characterized as an expert-based Q&A service since an expert, in this case a reference librarian, interacts with users to resolve information needs.

#### **2.1.4. Social Q&A**

Social Q&A provides users with the opportunity to ask questions to friends or acquaintances within social network sites or social search engines (Horowitz & Kamvar, 2010). According to Paul, Hong, and Chi (2011), the question-answering interactions within social network sites (e.g., Facebook<sup>3</sup>, Twitter<sup>4</sup>, etc.) are gaining increased popularity because these sites let people leverage the expertise of network friends, as well as engage in the collective knowledge of their social network community.

Arguably, social Q&A services share many of the same characteristics as community-based services, i.e., a repository of questions and answers for sharing

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<sup>3</sup> <http://facebook.com>

<sup>4</sup> <http://twitter.com>

knowledge within a Quora<sup>5</sup> community (Wadhwa, 2011), but with a few key differences. For example, Honeycutt and Herring (2009) found that the Twitter users utilize the service to solicit information, and according to Morris et al.'s (2010) study of users who post questions to social networking sites, not only does the user most likely trust the information source since it is someone from his or her personal network, but also the information received is also personalized based on the answerers' knowledge of the user.

## **2.2. Questions in online Q&A services**

A rich body of literature has focused on developing a taxonomy for questions asked within digital reference services (see Arnold & Kaske, 2005; Desai, 2003; Garnsey & Powell, 2000; Hodge, 2002; Kibbee, Ward, & Ma, 2002; Sears, 2001; Smyth, 2003). Numminen and Vakkari (2009) argued that Sears (2001) developed the most comprehensive taxonomy, which “covered the greatest range of various types of questions and included the most detailed subdivision of questions” (Numminen & Vakkari, 2009, p.1251). Sears's (2001) taxonomy divided reference questions into the three categories: (1) ready-reference questions; (2) specified search questions; and (3) research questions.

Similar research has been performed within other online Q&A sites. For example, Harper, Moy, and Konstan (2009) developed two distinct question types in order to investigate archival value in online Q&A sites (Ask Metafilter, Answerbag, Yahoo! Answers): (1) informational questions are more likely to gather information; and (2) conversational questions stimulate discussion that solicits opinions from others. Another

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<sup>5</sup> <https://www.quora.com/>

study by Harper et al. (2010) utilized a rhetorical framework (Aristotle, 2007) to classify questions using the same online Q&A sites as the previous study (Harper et al., 2009). The framework has three major categories: (1) Deliberative (advice, identification); (2) Epideictic (approval, quality); and (3) Forensic (prescriptive, factual). The study found that factual (31%) questions are most frequently asked, followed by identification (28%), advice (11%) and prescriptive (11%).

Additionally, a recent study by Choi et al. (2012) also focused on frequency distributions for question type among four different online Q&A services, each representative of a type of Q&A site identified above. The study developed four different question types using previous research by Harper et al. (2010): (1) information seeking questions, (2) advice-seeking questions, (3) opinion-seeking questions, and (4) non-information seeking questions (self-expression).

Recent studies have also paid attention to how a question is formulated and how this impacts quality within online Q&A environments. For example, Shah et al. (2012) examined why fact-finding questions from Yahoo! Answers failed, or did not receive an answer. A typology was developed in order to determine reasons for why a question might fail and the results indicated that the most significant proportion of failed questions were too complex and/or overly broad (34%), followed by those that lacked information (14%), had multiple related questions (13%), and were ambiguous (10%). Choi, Kitzie, and Shah (2013) performed a similar study, but focused on fact-finding questions that both did and did not receive an answer. They subsequently developed a model that predicts question quality (good or bad) using textual features of a question for training



and non-textual features of a question as evaluated by human assessors for testing.

The results from the study (Choi et al., 2013) revealed that six significant textual attributes contribute to the model with the highest percentage of accuracy: (1) interrogative words used at the beginning of a question; (2) the number of unique words in the question, which is an indicator that the information within the question is more specific; (3) the clarity score representing the complexity of the question; (4) presence of content that provides additional information in order to give the reader a better understanding of what the asker is looking for; (5) the number of question marks, which signifies how many questions the user asks; and (6) presence of taboo words, which indicates whether the question is socially appropriate.

### **2.3. Motivation**

This dissertation explores people's motivations in asking online questions of Q&A services. Motivation is a psychological factor that engages people in a process of actions that lead toward a desired goal. One of the main topics in this study is to investigate information behaviors, defined by Nahl (2004) as a form of goal-directed behavior taken to satisfy an information need, with emphasis on their motivational factors for asking a question in order to fulfill their information needs within online Q&A. The dissertation assumes that what motivates people to ask questions influences their information seeking behaviors for satisfaction of needs within online Q&A. In this section, in order to gain a better understanding of what motivates people to ask a question within online Q&A services, the definition of motivation is reviewed, followed by an overview of related theoretical frameworks of motivation, including the concept of

information need as motivation in LIS. Additionally, previous research focusing on motivation of media use will also be described.

### **2.3.1. Definition of Motivation**

As Maehr (1974) argues, motivation comprises the “inner states or process of the organism – needs, drives, etc. – which prompt and guide behavior” (p.887) indicating that people are driven to act in a certain way in order to satisfy their needs. Mitchell (1982) explicates that each individual tends to engage in certain specified behaviors pertinent for different needs. Although a wide range of research areas have focused on different aspects of motivation in order to understand an individual’s behavioral process for his/her perceived value, Mitchell (1982) also argues that there are three fundamental perspectives “underlying properties of this definition” (p.81): 1) motivation is based on an individual phenomenon, 2) motivation is intentional, and 3) motivation is multifaceted. This signifies that an individual has a unique set of motivational factors driving them to act in a certain way to achieve a desired outcome within different stages of behavioral process, such as “the arousal (activation, energizers) and direction (choice) of behavior” (p.81).

Additionally, although motivation is defined by inner states (e.g., achievement, recognition, responsibility, etc.), external factors also affect how people behave to fulfill their needs. For example, Self-determinism Theory (Deci & Ryan, 1985) and Two-Factor Theory (Herzberg, 1966) explains how extrinsic motivations derived from organizational or environmental contexts (e.g., salary increase, work relationships, and job security, etc.) influence the behavioral process.

### **2.3.2. Theoretical Frameworks of Motivation**

A number of motivational theories, models, and frameworks have been introduced to understand and explain why people to act in a certain way. Campbell et al. (1970) argued that those motivation theories could be divided into the two distinct groups: (1) process models; and (2) content models. Process models of motivation investigate the process of how people act in a certain way in order to achieve specific goals, while the content models of motivation pay attention to specific factors that motivate people to behave a certain way. A detailed review of each motivational theory and model within these two groups is provided in the next section.

#### **2.3.2.1. Process Models of Motivation**

Stimulus-response theory (Guthrie, 1935; Spence, 1936; Thorndike, 1911) focuses on how an individual's behavioral process is constructed by the stimulus-response (SR) bond, which provides “rules relating stimulus factors such as reward magnitude, number and timing to the strengths of those intervening variables, and rules relating those variables to empirical response measures” (Holland, 2008, p.228). Similar to the conceptual framework of stimulus-response theory, Hull (1943) proposed drive theory, which explains how individuals' biological and physiological needs compel them to perform a certain action in order to satisfy these needs. For instance, basic biological drives (e.g., hunger, thirst, etc.) motivate individuals to seek food and water. Additionally, habit strength is built through (Campbell et al., 1970) positive reinforcement from previous experiences, which increases the probability of an individual choosing a similar behavior when the same need arises in the future.

Unlike drive theory, which does not speculate on individuals' selection of their actions to satisfy physiological needs, expectancy theory proposes that individuals consciously act with respect to the anticipation of a reward (Campbell et al., 1970). Expectancy theory (Porter & Lawler, 1968; Vroom, 1964) explains the behavioral process of *why* individuals make one behavioral choice over another. Instead of focusing on what factors motivate individuals, this theory highlights why individuals act a certain way according to the perceived consequences of their actions or desired outcomes. Campbell et al. (1970) pointed out that expectancy theory relies on the assumption that "individuals have cognitive expectancies concerning the outcomes that are likely to occur as the result of what they do and that individuals have preferences among outcomes" (p.343). Expectancy theory is based on three core variables: (1) expectancy; (2) valence; and (3) instrumentality. Expectancy can be referred to as "a belief concerning the likelihood that a particular act will be followed by a particular outcome" (Campbell et al., 1970, P.344). Valence is a belief about an individual's preference or desirability of outcomes, and there are presumably individual differences in the level of preference for an outcome (Vroom, 1964). Instrumentality can be described as a belief that an individual will receive a perceived or valued outcome if he or she performs well.

### **2.3.2.2. Content Models of Motivation**

Murray (1938) developed a theory of personality that conceptualized what factors or needs influence an individual's behaviors. Psychogenic needs are divided into five groups: (1) ambition needs (e.g., achievement, exhibition, recognition); (2) materialistic needs (e.g., acquisition, construction, order, retention); (3) power needs (e.g., abasement,

autonomy, aggression, avoidance, deference, dominance); (4) affection needs (e.g., affiliation, nurturance, play, rejection); and (5) information needs (e.g., cognizance, exposition, sentience).

Similar to Murray's (1938) identified human needs that motivate an individual's behaviors, Maslow (1943, 1954) also presented a more systemic hierarchical model of human needs for understanding human motivation, including physiological needs, safety needs, love and belonging needs, esteem needs, and self-actualization needs (shown in Figure 2.1). According to Maslow (1943, 1954), an individual's growth or upper level needs may not emerge until his/her lower level of needs are satisfied. This signifies that human needs need to be fulfilled sequentially, starting with basic needs (e.g., physiological needs), in order to achieve self-actualization needs.

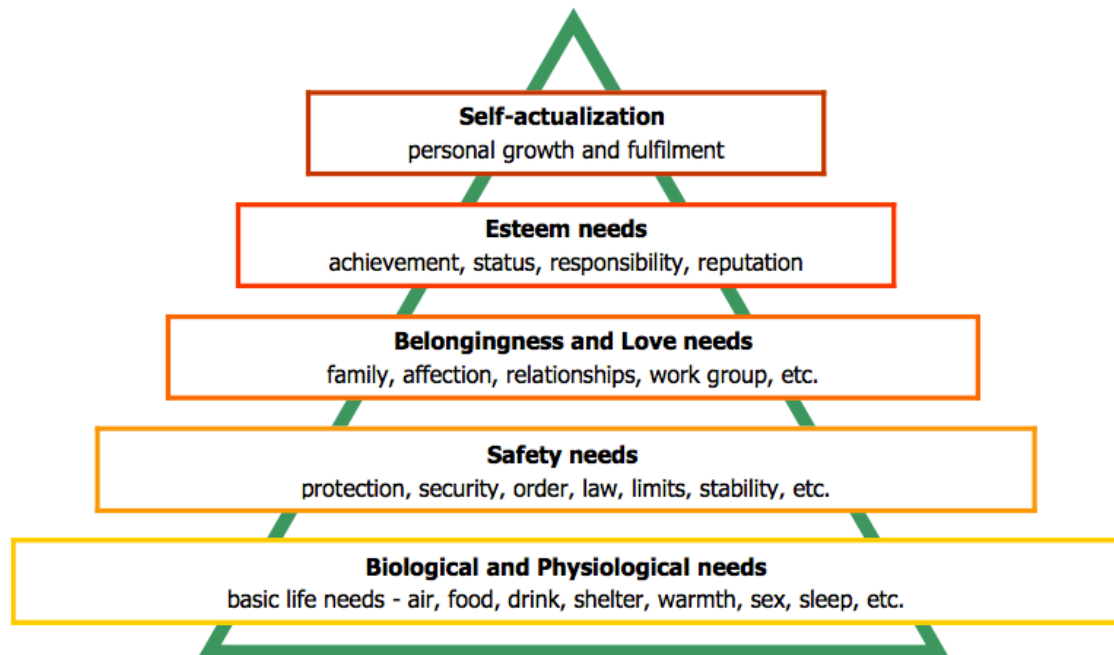


Figure 2.1. Maslow's hierarchy model of human needs.  
In order to investigate motivation and job satisfaction, particularly in work

environments, Herzberg (1966) proposed two-factor theory, which postulates two motivational factors in the workplace – motivators and hygiene factors. Motivators are more likely correlated to an individual's inner states related to his/her job (e.g., achievement, recognition, or responsibility), while hygiene factors more likely stem from external, organizational contexts (e.g., salary increase, the work relationships, and job security, etc.) that influence an individual's job performance (Campbell et al., 1970).

Unlike two-Factor theory, which particularly pays attention to how an individual's needs affect his or her job satisfaction in work environments, uses and gratification theory (Katz, Blumler, & Gurevitch, 1974; Katz, Gurevitch, & Haas, 1973) focuses on an individual's media use in order to explain what motivates an individual to seek a specific medium for gratifying his/her needs. The focus of this theory is on what people do with the media rather than the effects of media on an individual. The basic assumptions of uses and gratification theory are that there are individual differences in needs and that media users are active and goal-directed in attempting to satisfy their needs through media use (Katz et al., 1974). According to Katz et al. (1973), there are a number of the basic human needs identified from “the social and psychological functions of the mass media” (p.166), and these needs could be classified into five groups: (1) needs for strengthening information, knowledge, and understanding; (2) needs for strengthening aesthetic, pleasurable and emotional experience; (3) needs for strengthening credibility, confidence, stability, and status; (4) needs for strengthening contact with family, friends, and the world; and (5) needs for escape or tension-release.

### **2.3.3. Motivation in the context of LIS**

While theoretical approaches of motivation have been applied to understand behavioral processes, as well as motivational factors within various contexts, such as education (see Bartol & Srivastava, 2002; Deci, Koestner, & Ryan, 2001; Lepper & Malone, 1987; Vallerand et al., 1992), consumer behavior (Madox, 1981), health care (Benson & Dundis, 2003; Sheldon, Williams & Joiner, 2003), managerial processes (Bassett-Jones & Lloyd, 2005; Conger & Kanungo, 1988), and work environments (Hart et al., 1986; King, 1970; Lundberg, 2009), the concept of motivation has been also discussed in LIS, in order to understand peoples' information needs and their information seeking behaviors for fulfilling those needs.

The concept of an information need and its role in information seeking and use has been discussed within LIS (Bruce, 2005). Generally, an information need is “a cause of information seeking” (Case, 2002, p.80) or “a requirement that drives people into information seeking” (Ikoja-odongo & Mostert, 2006, p.147). In addition, Case (2002) points out that an information need could be also illustrated by the continuum of motivation, ranging from the objective end (Atkin, 1972, 1973) to the subjective end (Dervin, 1983, 1992). The objective end of motivation views an information need as indicative of an information seeker's “objective reality”, which motivates him/her to seek “a specific fact to make a decision or solve a problem” (Case, 2002, p.86), while the subjective aspect of motivation tends to understand an information need as an individual's ability to identify a gap in his/her knowledge and attempt not only to retrieve data, but also make sense of his/her problematic situation(s).

However, Wilson (1981) argued that the association of the terms, “information”

and “need” causes confusion; “[t]his association imbues the resulting concept with connotations of a basic ‘need’ qualitatively similar to other basic ‘human needs’” (pp. 5-6). In other words, he argued that “information need” appears to account for general human needs (Case, 2002), and paid more attention to various needs that specifically motivate information seeking behavior. Thus, Wilson (1981) pointed out that physiological, affective, and cognitive needs, as well as an information seeker’s social role and environment constitute the types of motivation for information seeking behavior, and information seeking behavior tends to arise when an information seeker perceives “a consequence of a need” (Wilson, 1999, p.251).

Since one of the central purposes of this dissertation is to investigate what motivates people to ask a question within online Q&A specifically, as opposed to investigating why people ask a question over other information seeking behaviors, Wilson’s (1981) concept of an information need and information seeking – “information seeking towards the satisfaction of needs” (p.6) - and the content models of motivation that pay attention to a variety of factors that motivate people to act in a certain way, provide a relevant conceptual framework of motivations behind asking a question. Uses and gratifications theory (Katz et al., 1973) in particular appears to constitute the most appropriate content model of motivation since, unlike other content models of motivation that focus on basic needs affecting personalities or job satisfaction, this theory focuses on human needs within mediated channels as a specific context. In addition, uses and gratification theory explains that there are individual differences in needs that motivate media use, therefore it could be useful to investigate different needs that people want to



fulfill via the question-answering process within an online Q&A context. A detailed review of uses and gratification theory is presented in Section 3.3.

#### **2.3.4. Motivation of media use**

This dissertation focuses on what motivates people to use online Q&A services to ask a question as information seeking behavior to satisfy their needs. In the following section, previous literature focusing on motivations for various media uses, including traditional and new media, will be presented in order to provide general understanding of factors that drive people to use media for their needs.

##### **2.3.4.1. Motivation of traditional media use**

Previous research employing a uses and gratification approach has investigated conventional media such as newspapers (Berelson, 1949), radio (Armstrong & Rubin, 1989), television (Bryant & Zillmann, 1984; Dobos, 1992; Rubin, 1983), and the telephone (Dimmick, Sikand, & Patterson, 1994; O'Keefe, & Sulanowski, 1995). The findings from these studies indicate that information seeking and social connection are the most significant motivational factors for using traditional media.

##### **2.3.4.2. Motivations of the Internet use**

The emergence of new media, including the Internet, has also attracted researchers to investigate what motivates a user's switch from conventional media to new media and how new media has subsequently been used for satisfying users' needs and goals (Eighmey & McCord, 1998). December (1996), for example, identified communication, interaction, and information as three major factors for why people use

the Internet, while Korgaonkar and Wolin (1999) added the additional factors of social escapism (e.g. getting away from reality) and economic motivation (e.g. using the Internet to save money). Other research has also studied motivations within different Internet contexts such as virtual communities (Sangwan, 2005), chat rooms (Leung, 2003), personal home pages (Noh, 1998; Papacharissi, 2002), electronic bulletin boards (James, Wotring, & Forrest, 1995), and social media (Quan-Haase & Alyson, 2010). Additionally, Morris, Teevan, and Panovich (2010) conducted a lab study in order to understand why people use either search engines or social networking sites to search for information. Their findings show that whereas the participants prefer to use search engines to receive faster and authoritative information, they utilize their social networking sites to seek information because “it is fun, they trust their social network, they wanted opinion-type answers, and their social network knew additional context about them.” (p. 293). Similarly, the recent study by Oeldorf-Hirsch et al. (2014) focused on motivations of seeking information in both traditional search engine systems (e.g., Bing, Google) and social networking sites (e.g., Facebook, Twitter). The study indicated that information needs for using social networking sites are rooted in trusted networks where people may be able to receive personalized, subjective information (e.g., opinion, etc.), while traditional search engine systems were used when people had navigational and exploratory information needs.

#### **2.3.4.3. Motivations of online Q&A use**

Studies of motivations have also been conducted within different online Q&A services. For example, Pomerantz and Luo (2006) investigated what motivates people ask

a question within NCknows, a chat-based digital reference service. Six categories of motivation emerged from users' responses: (1) to answer a work-related question; (2) to answer a question that arose from the user's personal life; (3) to conduct a known-item search; (4) to answer a question about the library itself; (5) to help others look for information; and (6) other.

Studies have also focused on motivations within other types of online Q&A sites. Lee et al. (2005) studied information seeking behaviors when searching for music-related information within two different types of online services: (1) Yahoo! Answers, a community-based Q&A; and (2) Google Answers, an expert-based Q&A, and identified the most significant information need as identifying either the artist and/or work. Zhang (2010) analyzed health-related questions from Yahoo! Answers with emphasis on how an everyday life context (e.g., goals, motivations, emotions) affects motivations for seeking health-related information seeking. Zhang (2010) identified three motivational factors: cognitive motivation, social motivation, and emotional motivation. Additionally, Morris et al. (2010) examined social networking sites (e.g., Facebook, Twitter) in order to investigate the types of questions asked and users' motivations for using their social networks to pose questions. The study explored why people choose social networking sites rather than a search engine, finding that the most common reason is that people have more trust (24.8%) in the answers provided by their social network. Users also tend to believe (15.2%) that social networking sites perform better than search engines in addressing subjective questions seeking opinions or recommendations (21.5%).

However, previous studies of motivations within the online Q&A environments

have been constrained to specific interests and/or domains. Therefore, it is necessary to investigate a variety of online Q&A services consisting of a broad range of topics in order to gain insights into user motivations for asking a question within online Q&A sites as a whole, over other information sources.

## **2.4. Expectation**

### **2.4.1. Definition of Expectation**

Expectation can be defined as the perceptions of what is likely to be required in order to receive “favorable outcomes that is desired” (Campbell et al., 1970, p.343); whether or not an outcome is perceived as favorable is based on an individual’s subjective values (Feather 1982). In other words, people choose to perform a specific behavior based on whether or not they anticipate that their expectation will be met by the outcomes. Therefore, their specific goals or needs could be satisfied if their expectation is met to some degree based on their perceived values. Yet, expectation goes hand-in-hand with motivation. In other words, motivation to satisfy needs or achieve goals based on personal values is driven by the expectation of what will occur when this goal is achieved, and vice versa. This indicates that motivation and expectation are correlated in achieving a specific goal or desirable outcomes.

### **2.4.2. Expectation to Information**

People anticipate or expect that when they articulate an information need, they will receive information that fulfills this need. People employ evaluative criteria in order to assess how well an information source fulfills their information need. Therefore, it

can be argued that the evaluation of information in relation to these criteria articulates a user's expectations for this information.

Previous research studies examine the evaluative criteria employed to judge the results of an information search, which, as argued above, can be used to determine the expectations of online Q&A users for the information they receive. These evaluative criteria appear to be grounded by overarching high-level constructs: quality, satisfaction, and/or relevance. Taylor (1986), for example, likened the evaluation of information to making a quality-based assessment, and found five values that comprise quality: accuracy, comprehensiveness, currency, reliability, and validity. On the other hand, Barry (1994) identified the act of evaluation as a satisfaction-based assessment rather than a quality-based judgment. He identified criteria such as background/experience, consensus within the field, external verification, source quality, source reputation/visibility, effectiveness, and time constraints, as hallmarks of satisfaction. Another marker of information evaluation depicted by Bateman (1999) is of relevance. He identified quality, credibility, and completeness as the critical factors of information relevance judgments made among survey respondents. Aside from the larger criteria of relevance, quality, and satisfaction, and their related sub-criteria, other evaluative criteria have also been identified. Rieh (2002), for example, employed various high-level concepts consisting of information evaluation elements, such as cognitive authority (e.g., trustworthy, credible, authoritative) and topical interest in the Web environments.

Studies of criteria employed to evaluate information have also been conducted within the context of online Q&A services. Janes, Hill, and Rolfe (2001) analyzed expert-

based reference services, focusing on the characteristics of questions as well as responses received to the given questions, in order to examine their relevance within the library and other professional information service fields. Findings indicated that additional or alternative information in relation to the requestor's stated information need proved an important factor in determining the perceived quality of responses within expert-based reference services. In addition, Kim, Oh, and Oh (2009) investigated evaluation criteria employed by Yahoo! Answers users to select a "Best Answer". The study identified 25 items as being essential to users' evaluation of information content and grouped them into six main categories: content value, cognitive value, socio-emotional value, extrinsic value, information source value, and utility. The findings indicated that among these categories, utility (effectiveness, solution feasibility) is the most critical factor in evaluating answers, followed by socio-emotional value.

A recent study by Shah and Kitzie (2012) identified the additional factor of trustworthiness as constituting one of the critical factors in making evaluative judgments within online Q&A environments. Although these studies identify different high-level criteria purported to structure and describe how information is evaluated, it is apparent that both these high-level criteria and the factors identified as comprising them tend to experience considerable overlap, suggesting that expectations influenced by information evaluation follow a finite, explicable set of characteristics.

Although previous research exists that examines either the motivations for asking a question to seek information or the evaluations of information, which articulates a user's expectations for the service within online Q&A, these studies have not considered

the relationship between motivations and expectations for the user's information seeking behavior within online Q&A. This relationship is important to consider, as addressed by Feather (1982), who proposed that motivation is a function of expectation. Hsu et al. (2010) argued that "an individual's motivation to perform a certain activity is a function of the expectation that he or she will be able to perform the activity and obtain the desired outcomes, and the personal value of all outcomes associated with that activity" (pp. 284-285). Therefore, this study will start with the assumption that both motivations for and expectations of asking a question within an online Q&A environment constitute the intervening processes for all following aspects of information seeking behavior that occur.

## **2.5. Summary of Literature Review**

This chapter reviewed the core elements that construct user motivations and expectations in the questioning experiences within the context of online Q&A for the study. This section summarizes findings from the literature reviews and points out the gaps that need to be filled for a better understanding of why people ask a question and what they expect from other participants in online Q&A services.

The previous research studies focusing on questioning behaviors in online Q&A services were reviewed. Even though they have been conducted to investigate a variety of aspects of how and what questions are asked, it was identified that there is little knowledge of the general backgrounds of what motivates people to ask a question and how they judge information quality based on their expectation in the context of online Q&A. Additionally, it was found that four different types of online Q&A services could be classified based on unique characteristics of question-answering interactions, as well

as the online environments in which people interact with other people to seek and share information. Since the focus of the study is to understand users' questioning behaviors that relate to interactions with unknown people, community-based and collaborative online Q&A services may be appropriate for investigating users' questioning behaviors for the study because these services are designed to allow people ask their own question, while unknown participants voluntarily provide answers.

Since one of the interests in this study is to investigate motivational factors for asking a question in order to fulfill needs in online Q&A services, a number of theoretical frameworks of motivation were reviewed in order to understand how questioning behaviors could be understood by different perspectives of motivation. From the previous literature related to information needs in the field of LIS, it was found that people tend to be involved in information seeking behaviors to satisfy their need, which could be different based on their unique situation. Thus, it was suggested that the content models of motivation that conceptualize what factors or needs influence behaviors could be helpful for the study since the main focus is to investigate different motivational factors for asking a question in online Q&A environments.

Additionally, since the study assumed that motivation and expectation are correlated in satisfying a user's need when asking a question in online Q&A services, the previous research studies focusing on how to judge information quality in field of LIS were specifically reviewed because evaluative criteria are employed to judge how well an information source fulfills their information need. The evaluation of information in relation to these criteria also articulates a user's expectations for this information.



Reviewing the previous studies on the evaluative criteria in the field of LIS helped gain a broad sense of contextual backgrounds of what online Q&A users expect from others with respect to their answers to a question.

The findings from the literature review indicated different types of motivational factors expectation-based factors with a focus of the online Q&A users' questioning behaviors. These factors were then tested in this dissertation.

### **CHAPTER 3: CONCEPTUAL FRAMEWORK**

In this section, several theoretical frameworks that guide the proposed research, including developing research questions are presented. These are everyday life information seeking, social exchange theory, communities of practice, uses and gratifications, and sense-making. First, everyday life information seeking (ELIS) provides the general outline of how people engage in human-to-human interactions by asking a question to fulfill their information need within an online Q&A context. Since human-to-human interactions and social contexts are important places to conceptualize humans' information seeking behaviors in everyday life contexts, social exchange theory and communities of practice facilitate an understanding of how people exchange information through the question-answering process within online Q&A sites. Finally, in order to investigate social contexts and situations that influence asking a question using an online Q&A service, this proposal pays attention to online Q&A users' motivations and expectations. Uses and gratifications theory will be used to describe motivations, since it conceptualizes the different types of needs expressed when people ask a question within online Q&A sites. Sense-making is proposed as the conceptual framework to understand expectations based on the asker's unique situation.

#### **3.1. Asking a Question for Seeking Information in Everyday Life Information Seeking**

The advent of the Internet has enabled people to ask a question in order to seek information for their information need within online environments. Online Q&A is a Web environment where people ask a question to seek information for their information

need in the online environments. Within an online Q&A environment, people can ask a question across a broad range of topics (Harper et al., 2008). Thus, online Q&A sites provide an everyday life information-seeking context that allows people who are confronted with a problematic situation to acquire the information necessary to solve it. In this instance, the theoretical framework of everyday life information seeking (ELIS) developed by Savolainen (1995) could be useful to contextualize how people visit online Q&A to ask a question.

Everyday life information seeking (ELIS) is a holistic framework for understanding how people seek information within their daily life. Savolainen (1995) provides the concept of a “way of life”, derived from the notion of *habitus* (Bourdieu, 1984), which conceptualizes information seeking as “a natural component of everyday practices” (p.261). The ELIS framework helps researchers to understand how people use information to solve their everyday problematic situations. Unlike other theories and models of information seeking behavior based on investigations of scholars’ or professionals’ task-related information behaviors (for example, Ellis, 1993; Kuhlthau, 1993), ELIS serves as a framework for “the acquisition of various informational (both cognitive and expressive) elements which people employ to orient themselves in the daily life or to solve problems not directly associated with the performance of occupational tasks” (Savolainen, 1995, pp. 266–267). However, the study of ELIS points out that everyday life and work or job-related tasks are inextricably tied (see Figure 3.1 for details of the structure of ELIS practices). Therefore within online Q&A, it can be argued that some may ask a question to seek information to solve personal issues (e.g., health) while

others may use online Q&A for their professional or academic tasks (e.g., homework).

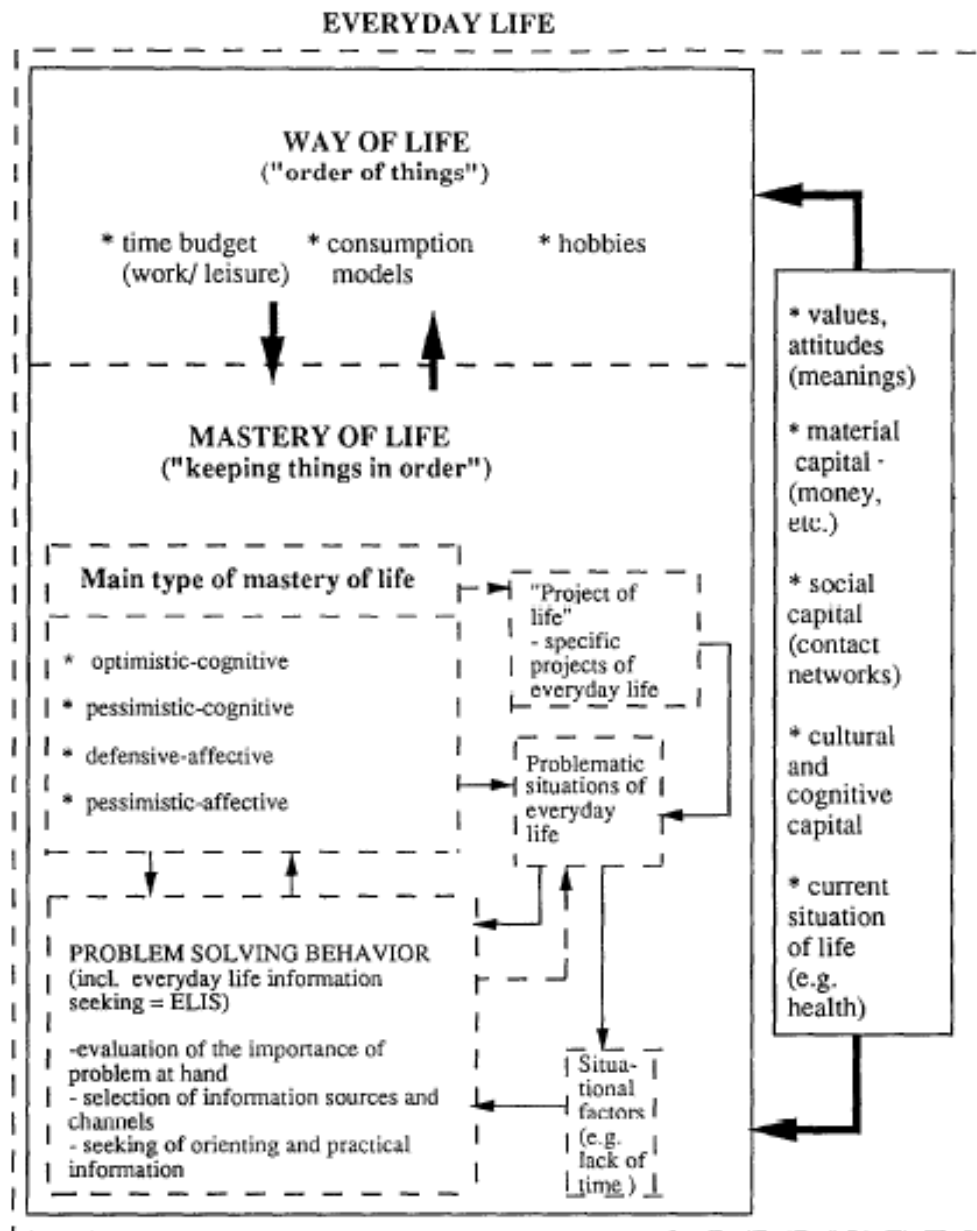


Figure 3.1. The basic components of the study of ELIS in the context of "way of life" (Savolainen, 1995).

Previous Library and Information Science (LIS) literature has paid much attention to understanding human information behavior through the theoretical framework of ELIS

(see Carey, McKechnie, & McKenzie, 2001; Given, 2002; Julien & Michels, 2000; Shenton & Dixon, 2004; Spink & Cole, 2001; Wick, 2004, Williamson, 1997) among different populations and settings. These studies have similarly stressed two important factors in determining peoples' information seeking behaviors in the daily life world: (1) human sources of information and (2) specific problem-solving contexts. In this fashion, McKenzie (2003) proposed a model of information practices with emphasis on social interactions and contexts in human information seeking within the ELIS framework.

The most significant attribute in online Q&A services that distinguishes it from promoting traditional information retrieval (IR) is that an information seeker is engaged into human-to-human interactions when asking a question in various social contexts. Additionally, traditional approaches of information seeking behavior have focused on scholarly and professional tasks, whereas online Q&A is designed to seek contextual information for an asker's unique ELIS situation. Therefore, the development of a theoretical framework to understand how social interactions, contexts, and situations within everyday life contribute to asking questions would be useful to gain a better understanding of what motivates people to visit online Q&A services and what the users' expectations are with respect to question responses.

### **3.2. Human-to-human Interactions for Seeking and Sharing Information**

Social exchange theory (Blau, 1964) may provide a theoretical approach to explain how individual users interact to fulfill information needs within online Q&A. This theory is derived from economics with a focus on the exchange of economic value. Cropanzano and Mitchell (2005) also argued that exchanges can be related to symbolic

relevance, where people tend to seek and share a “symbolic benefit” rather than “objective worth” (p.880). Foa and Foa (1974, 1980) proposed six exchange resources: love, status, information, money, goods, and services; this was divided into two major outcomes: economic outcomes (economic exchange) and socio-emotional outcomes (social exchange). In other words, exchanges for economic outcomes are more likely related to money, goods, and services, and the people involved in such exchange transactions desire “objective worth,” whereas love, status, and information for socio-emotional outcomes is produced from exchanges likely developed for “symbolic benefit.” Additionally, Blau (1964) argued that social exchange is distinct from economic exchange because it is less likely linked to objective worth, which “involves favors” and “engender[s] feelings of personal obligations, gratitude, and trust” (p.94), whose benefits are hardly quantified or matched by the price.

Online Q&A provides a means for people to engage in social exchanges through question answering interactions for seeking and sharing specific information that helps satisfy each asker’s information need. In other words, people receive specific answers tailored to their information needs (Shah, Oh, & Oh, 2009), and an asker also values the affective elements of social Q&A sites, often posting content soliciting advice and opinions, as well as general social engagement (Kim, Oh, & Oh, 2007). This indicates that online Q&A users utilize services to ask a question with the expectation of receiving different socio-emotional outcomes (Foa & Foa, 1974; 1980). This is in comparison to other information sources (e.g. keyword-based search engines) where people are only allowed to input their query and cannot interact with others in order to fulfill information

needs. According to Monge and Contractor (2003), social exchange theory posits that people regulate their interactions with others based on the overall worth of interactions. Thus, people may continue to use online Q&A to seek a particular socio-emotional outcome (e.g., factual knowledge, opinion or advice, or social engagement, etc.) over other information sources when the perceived value of social interactions in online Q&A is positive. This signifies that the benefits (e.g. receiving relevant information based on the unique situation of the asker) are greater than the costs (e.g. investing time to formulate a question, as opposed to entering keywords, to express an information need).

Communities of practice constitute another appropriate framework for understanding the use of human-to-human interactions to seek and share information in an online environment. This approach is used because social interactions are necessary for knowledge exchange among people. Lave and Wenger (1993) originally developed the concept of communities of practice, which is described as “a set of relations among persons, activity and world, over time and in relation with other tangential and overlapping communities of practices” (p.98). Lave and Wenger (1993) argued that participation is a critical factor for interaction within any environment (e.g., virtual, physical co-presence, etc.) where people participate in activities where they have a common interest and/or understanding that promotes information sharing and exchange (Kimble, Hildreth, & Wright, 2001).

In accordance with Wenger (1998, 2004), a group of people within a community develop social norms and construct collaborative relationships with one another, i.e., mutual engagement, in order to achieve “problem solving, requests for information,

discussion of developments, information seeking and coordination, planning, or negotiation of meaning” (Mills, 2011, p.349) through developing a shared understanding or joint enterprise within an interaction. Thus, the notion of communities of practice posits that people within a community develop a shared repertoire as a part of their practice that is used in “the pursuit of their joint enterprise and can include both literal and symbolic meanings” (Wenger, 1998, p.73). In this respect, a notion of communities of practice has been discussed in order to understand effective ways of sharing information and to investigate collaborative knowledge sharing within a variety of online contexts. Faraj and Wasko (2001), for example, utilized the concept of communities of practice in order to understand the dynamics of knowledge exchange among three technical computer related newsgroups on Usenet. The study found that the motivation for professional affiliation has a significant relationship with knowledge acquisition and contribution, as well as knowledge exchange with like-minded people. Moreover, Ardichvili et al. (2002) argued that a majority of respondents regarded collaboration for sharing knowledge in virtual communities of practice as a useful problem-solving tool that helps obtain specific expertise from others.

The theoretical approach of communities of practice focuses on a shared domain of interest and engagement in participation between groups of people within a community to promote the seeking and sharing of information, as well as mutual engagement when delivering information. Although Shachaf (2010) argued that online Q&A communities might differ in scope and means of operation to share and seek information, this approach helps us to understand how users’ social interactions of seeking and sharing information



in online Q&A environments affect information seeking and sharing. Online Q&A provides an opportunity to investigate how people ask a question in order to acquire information via their social interactions with other people for their general concerns and topics of interest in various everyday life information contexts.

### **3.3. Seeking Contextual Information to Address an Asker's Unique Situation**

To investigate social contexts and situations that influence asking a question using an online Q&A service, the study focused on the two elements – motivations and expectations – of online Q&A users' information behavior. Understanding user motivations behind asking a question and expectations with respect to potential responses could provide a general framework of for conceptualizing different contexts of information needs that drive people into social interactions for seeking information within online Q&A information seeking situations.

First, uses and gratifications theory is taken in order to investigate users' motivations for asking a question. This approach explains the motivations related to using a specific form of media (Swanson, 1979), and assumes that active media users tend to be goal-directed, achieve their goals and needs through media uses (Katz, Blumler, & Gurevitch, 1974), and exercise awareness of their needs by choosing a specific media outlet they think will best gratify them (Blumler, 1979; Swanson, 1979). This theoretical approach provides insight into media users' psychology and behaviors (Lin, 1996) in addition to “(1) the social and psychological origins of (2) needs, which generate (3) expectations of (4) the mass media or other sources, which lead to (5) differential patterns of media exposure (or engagement in other activities), resulting in (6) need gratifications

and (7) other consequences, perhaps mostly unintended ones” (Katz et al., 1974, p. 20).

McQuail, Blumler and Brown (1972) developed a typology of media use based on the gratification users sought. This typology consists of “(1) diversion (escape, emotional release), (2) personal relationships (companionship, social utility), (3) personal identity (personal reference, reality exploration, value reinforcement), and (4) surveillance (acquiring news and information)” (p. 162). Similar to the typology of needs for media use developed by McQuail et al. (1972), Katz et al. (1973) also attempted to identify thirty-five needs associated with one’s resources, and group those needs into five major categories: “(1) Needs related to strengthening information, knowledge, and understanding —these can be called cognitive needs; (2) Needs related to strengthening aesthetic, pleasurable and emotional experience—or affective needs; (3) Needs related to strengthening credibility, confidence, stability, and status—these combine both cognitive and affective elements and can be labeled integrative needs; (4) Needs related to strengthening contact with family, friends, and the world. These can also be seen as performing an integrative function; and (5) Needs related to escape or tension-release which we define in terms of the weakening of contact with self and one’s social roles” (p.166).

While the theoretical framework of uses and gratifications provides insights into different motivations for engaging with online Q&A services to ask a question, a useful theoretical framework for understanding what people expect to receive from others to address their uncertainty and the problematic situations derived from this unknown is Dervin’s (1983,1992, 1996) sense-making model. This model argues that information is

“subjectively constructed by the person seeking the information” (Cole, 1997, p.55), and employs the “situation-gap-use” metaphor in order to explain information seeking and its use through understanding how the information seeker embedded in a particular context or situation utilizes information to bridge the gap in his or her understanding to solve a problem (see Figure 3.2).

Social contexts constitute the unique circumstance in which each information seeker recognizes an inadequacy in his or her knowledge state, or recognizes a ‘gap’ in his or her reality, and then attempts to construct a bridge by acquiring information in order to once again make sense of the world. As different situations lead to different information needs and uses during the process of information seeking (Dervin, 1977), people may expect to receive contextual information unique to their situation. This may also signify that there could be different expectations in constructing the subsequent bridge based on each information seeker’s unique situation.

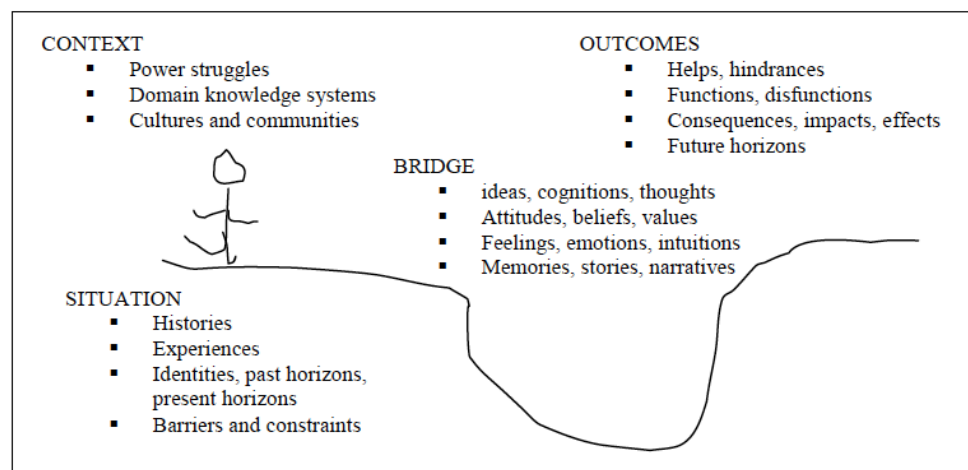


Figure 3.2. Dervin's (1992) sense-making metaphor.

### 3.4. Summary of Theoretical Frameworks

The study attempts to gain a better understanding of an asker's information

seeking behavior with emphasis on motivations for asking a question and the expectations with respect to the responses within online Q&A. Savolainen's (1995) concept of everyday life information seeking (ELIS) emphasizes different everyday life contexts fostered by social interactions through different media use. Social exchange theory and the notion of communities of practice can be applied in order to better understand the social interactions that occur to facilitate information seeking within online Q&A. These theoretical frameworks posit the importance of human-to-human interactions to seek and share information among a group of people, which constitute a critical feature of online Q&A.

Finally, the uses and gratifications approach and Dervin's sense-making model are proposed to demonstrate how individuals' social contexts and situations are conceptualized as subsequent motivations and expectations for asking questions, with specific emphasis on their interrelationships. Figure 3.3 visualizes the relationships between theoretical approaches, which helps in understanding human-to-human interactions by asking a question within an online Q&A context.

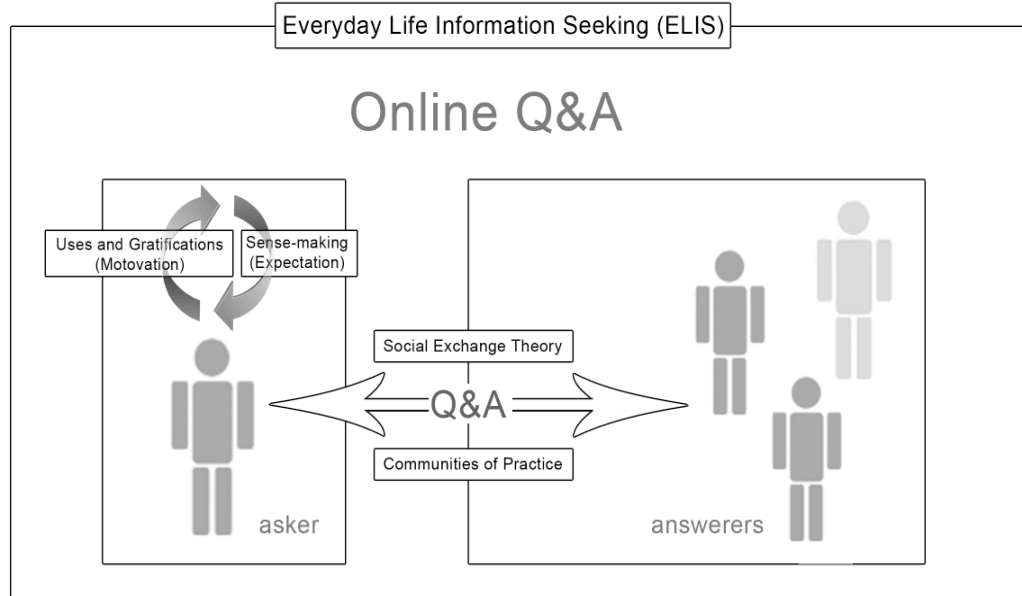


Figure 3.3. The relationship of theoretical frameworks in the dissertation.

## **CHAPTER 4: METHODOLOGY**

This chapter describes the methodology used in the study of online Q&A users' motivations and expectations for asking questions in order to satisfy their needs. In this dissertation, the motivational factors identified by the uses and gratifications approach, as well as expectations based on variables identified in previous literature that form the evaluative criteria employed to judge information, were examined using a mixed-methods design.

### **4.1. Research Questions**

The goal of this study was to investigate online Q&A users' contexts and situations behind a questioning behavior. Especially, the user's expectations and motivations that prompt him or her to ask a question to others for seeking contextual information unique to their situations were examined. Yahoo! Answers and WikiAnswers were selected because people interact predominantly with unknown individuals in order to seek information in a wide range of topics within the online environments. This is opposed to other types of online Q&A services where people ask a question in a specific area (i.e., virtual reference services) or ask a question to known people (i.e., social networking sites). To do this, the following research questions were proposed:

RQ1. What motivates people to ask a question that address their needs in Yahoo! Answers and WikiAnswers?

RQ2. What are an asker's expectations from other users to fulfill his or her needs when asking questions in Yahoo! Answers and WikiAnswers?

RQ3. How do motivations of asking a question relate to expectations of answer content in Yahoo! Answers and WikiAnswers?

RQ4. To what extent are motivations, expectations, and the relationship between motivations and expectations different and/or similar between Yahoo! Answers and WikiAnswers?

#### **4.2. Research Design**

To address the research questions, this dissertation used a mixed-methods design (Creswell, 2003), more specifically a sequential mixed method design (Morse & Niehaus, 2009) that blends quantitative and qualitative research in a single study. It is argued that quantitative and qualitative approaches could complement each other and the combination of these approaches could foster a more comprehensive data analysis (Tashakkori & Teddlie, 1998) and sharpen the understanding of findings (Gay & Airasian, 2000; Tashakkori & Teddlie, 2003). In a mixed-methods design, multiple research approaches are employed to collect and analyze data. Sieber (1973) argues that integration of quantitative and qualitative approaches could be effective not only to develop the research design, but also to help data collection and analysis. For example, at each stage of the research design, qualitative research provides the rationale to design quantitative research (e.g., a survey), and the researcher's familiarity, insights, and information can "make a major contribution to the development of a meaningful survey design" (p.1342). Quantitative research helps the researcher identify representative cases that should be more carefully explored to interpret the meanings derived from qualitative research. At the data collection stage, quantitative research helps avoid an "elite bias"

(e.g., having gratitude to the elite, keeping on good terms with the elite, etc.), which hampers the researcher's "objectivity throughout the ensuing study" (p.1352) before conducting qualitative research (e.g., an interview). Elites are defined as interview participants who "are often more articulate and give the impression of being better informed about the group than any other member" (p.1352). On the other hand, qualitative research provides "a means of gaining legitimation" (p.1344) to gather participants for quantitative research. Finally, at the stage of data analysis, qualitative research is useful not only to verify and interpret statistical findings from quantitative research, but also to clarify responses collected in quantitative research, while quantitative research takes important roles in verifying data interpretation, generalizing findings, and casting new light on findings in qualitative research.

It is also important to identify how mixed research methods should be appropriately organized to address questions in the research. Thus, Creswell et al. (2003) provided important criteria that the researcher should consider when designing research, as well as when collecting and analyzing data. These are: (1) determining which method (quantitative or qualitative) should be prioritized; (2) deciding which data collection procedures (sequential, concurrent, or transformative) should be implemented; and (3) integrating the multiple research approaches. Moreover, previous studies have formulated a typology of mixed methods research designs depending on characteristics and contexts of the research setting (see Creswell, 2002; Greene et al., 1989; Leech & Onwuegbuzie, 2009; Morse, 1991; Steckler et al., 1991). For instance, Leech and Onwuegbuzie (2009) conceived three-dimensional mixed methods designs, i.e., "the 2 (partially mixed versus



fully mixed) x 2 (concurrent versus sequential) x 2 (equal status versus dominant status) matrix” (p.268). These designs were developed based on three criteria proposed by Creswell et al. (2003): (1) partially mixed concurrent equal status design; (2) partially mixed concurrent dominant status design; (3) partially mixed sequential equal status design; (4) partially mixed sequential dominant status design; and (5) fully mixed concurrent equal status design. The purpose of this study was first to identify motivational and expectation-based variables for asking a question, to investigate the general characteristics of these variables and their relationships, and then to expand the understandings of these findings. Therefore, a sequential mixed method design was used, which employs a survey to investigate general characteristics of variables in motivations and expectations for asking questions within online Q&A sites to identify representative cases of online Q&A users’ motivational and expectation-based factors (phase 1). This was then followed by the diary method to collect information about online users’ questioning behavior patterns for interviews (phase 2). Interviews were then conducted to help interpret meanings in contexts and situations of these patterns, as well as clarify responses collected from the data of the first two phases (phase 3). Figure 4.1 illustrates the sequential research design employed in this study.

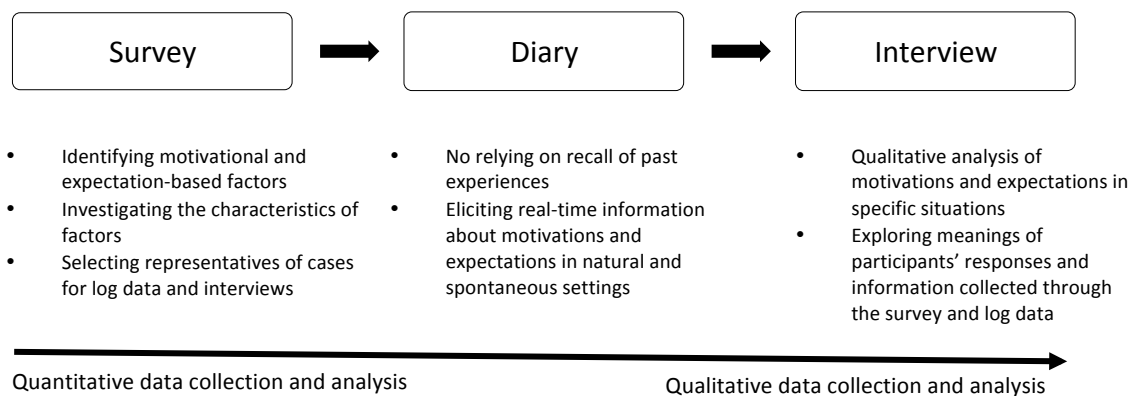


Figure 4.1. Sequential explanatory design in this dissertation.

In phase 1, an Internet-based survey was distributed to collect quantitative data that provided the big picture of users' motivations and expectations for asking questions within the context of online Q&A. The purpose of the quantitative research phase was to identify motivational and expectation-based variables within an online Q&A context, generalize online users' motivations behind asking a question and expectations for responses to their question within online Q&A sites, and finally attempt to select participants representing different cases of questioning behaviors for the next two phases in the research design.

In phase 2, prior to conducting interviews, the diary method was used to illustrate participants' general online searching behavior, as well as their motivations and expectations for asking questions within online Q&A. Different types of motivations and expectations to be investigated in this research are listed in section 4.4.2. The purpose of the survey in phase 1 was to analyze the general characteristics of users' questioning behaviors, including their motivations and expectations. Yet, it was limited in understanding specific contexts or situations that influence user motivations to choose an online Q&A when asking questions. Therefore, it might be necessary to supplement survey results with follow-up interviews for an interview analysis of their contexts and situations. However, interviews for investigating specific previous events, i.e., asking questions within online Q&A sites, need to rely on the interview participants' past experiences, which could be inaccurately recalled. Thus, the diary method in phase 2 helped collect real-time information about moments in which online Q&A users are

engaged in the question-answering process to satisfy their needs in natural and spontaneous settings. Thus, this phase was used as a starting point to elicit further information and document online Q&A users' motivations and expectations each time they asked a question within online Q&A sites, for interviews in phase 3.

In phase 3, interviews were conducted for qualitative data collection and analysis, which provide “depth and texture” (Hodgkin, 2008, p.296) in explaining online Q&A users' motivational factors and expectations for asking questions in different representative cases that were identified from an Internet-based survey in phase 1. As Kvale (1983) argues, “an interview [has the] purpose [...] to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena” (p.174). Therefore, conducting a series of interviews in phase 3 was a useful technique to understand specific situations and/or contexts that affect motivations and expectations in asking a question on online Q&A sites, as well as to explore the meanings of participants' responses, and information collected through the survey and the diary in the previous phases.

Information and documents collected through an Internet-based survey in phase 1 and the diary in phase 2 not only provided objective and generalized findings about online Q&A users' questioning behavior pattern with emphasis on motivational and expectation-based variables, but also helped identify representative cases for conducting interviews to analyze the situated contexts of asking questions for satisfying needs within online Q&A environments.

#### **4.3. Target Population and Sample**

The target population was online Q&A users who actively ask their own questions. This study included online Q&A sites Yahoo! Answers and WikiAnswers, respectively representing community-based Q&A services and collaborative Q&A services (Choi et al., 2012). A detailed review of each type of online Q&A is presented in section 2.1. To select potential participants for an Internet-based survey in phase 1, it was required that the participants had used one of online Q&A sites listed above, and asked at least one question during the previous six months. Moreover, participants from the United States were only considered for the survey recruitment in order to avoid possible cultural variances.

A total of 226 such participants, including 75 participants from the pilot study were recruited for the survey for the quantitative research portion. For phases 2 and 3 for the qualitative research component of this dissertation, maximal variation sampling was used to seek approximate representative samples for multiple cases. Maximal variation sampling is a purposeful sampling where the researcher selects different sample cases, which “represent the complexity of our world” (Creswell, 2002, p.194). This sampling “yields detailed descriptions of each case, in addition to identifying shared patterns that cut across cases” (Hoepfl, 1997, p.54), which maximizes the diversity, close to the whole populations, in the study.

Thus, identifying how many cases should be selected for the qualitative research portion of this study was dependent upon the data collection and analysis in the quantitative research phase. A total of 18 participants were selected from the survey participants based on participants’ responses: (1) gender; (2) age; (3) general Web search

behaviors; (4) history of online Q&A site use; (5) use of different types of online Q&A; (6) motivations and expectations for asking questions; and (7) their relationships when asking questions within online Q&A sites. This selection could help explore user behaviors that are both unique and similar (Sandelowski, 1995) within the context of online Q&A environments.

#### **4.4. Data Collection**

##### **4.4.1. Phase 1- Survey**

The first phase of this dissertation was to conduct an Internet-based survey mainly focused on quantitative data collection and analysis to identify and investigate characteristics of online Q&A users' motivations and expectations for asking questions and the relationships between motivations and expectations.

The quantitative survey approach focused on descriptive and experimental analysis in a population in order to make inferences with numerical data (Charles & Mertler, 2002). This approach analyzed variables referring to characteristics or attributes of the objects in phenomena and used statistical measurement and observation (Creswell, 2002). This constituted a useful data collection method because it could analyze significant phenomena based on a frequency of motivation and expectation, which helped explain the contextual backgrounds and situations of Q&A user's behavioral processes when asking a question.

A total of 226 participants from Yahoo! Answers and WikiAnswers participated in the Internet-based survey. Among 226 survey participants, 126 (55.75%) were Yahoo! Answers users and 100 (44.25%) were WikiAnswers users. The survey was based on the

self-reporting questionnaire consisting of different formats of questions such as open-ended questions, as well as Likert-scale based self-assessment questions. The survey questionnaire consisted of thirty four questions, which were also grouped into five categories: (1) demographics; (2) general Web and questioning behaviors; (3) motivational factors behind asking questions within online Q&A services; (4) expectations from other users with respect to their response to the question asked within online Q&A services; and (5) general experiences asking questions within online Q&A services. The details of the survey questionnaire are provided in Appendix 3. Since the study focused on active users who visit online Q&A to ask a question for satisfying their needs rather than those who search similar questions answered without asking their own question in online Q&A, it was not possible or practical to conduct a random sampling. Rather, online Q&A users who have asked at least one question during previous six months were purposefully selected in order to address the research questions for the study.

An online survey tool was administrated using Google Form<sup>6</sup> and the survey link was distributed via various communication channels (e.g., a direct message via an email, Facebook page, Twitter promotion, and advertising on classified sites) in order to reach Yahoo! Answers and WikiAnswers users.

First, Yahoo! Answers provide the users' profile pages where they optionally include their personal contact (e.g., email, IM). A direct message via email was used to distribute the survey link (see Appendix 1 for a recruitment message form for the survey). However, since sending a direct message was limited to 10 per day using a same account,

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<sup>6</sup> Google form is one of Google Drive products in which users are able to create a survey and link to to a Google spreadsheet for responses from participants.

20 different made-up accounts were created in order to distribute 200 direct messages to Yahoo! Answers users. The initial distribution ran from March 10<sup>th</sup> to March 29<sup>th</sup>, 2013 for the purpose of the pilot study. A second series was conducted from November 12<sup>th</sup> to November 29<sup>th</sup>, 2013. In both instances, a survey link distribution via a direct message for Yahoo! Answers users included additional reminder emails for a recruitment message that were sent the week after the first email recruitment message.

Second, the Facebook page<sup>7</sup> was created to promote the online survey distribution in both Yahoo! Answers and WikiAnswers users. The page was configured to only be visible to individuals over 18 years of age who currently live in the United States. The page was promoted with a paid advertisement measured by pay-per-clicks and impressions. A total of USD 39.70 was used for the Facebook page promotion to raise 10 clicks and 2,294 impressions for 10 days. This means that 2,294 users saw the Facebook promotion page for the online Q&A survey and 10 Facebook users clicked the survey link through the Facebook page. Third, Twitter was utilized to expand the online survey distribution channel. A short description of the study was posted with a Twitter hashtag (e.g., #yahooanswers, #wikianswers) in order to expose the survey recruitment message to other Twitter users who have similar ideas or expressions (Tsur & Rappoport, 2012), particularly related to these two online Q&A sites.

Last, classifieds Websites (i.g., backpage.com, craigslist.com) were used to promote the online survey with both paid and free promotions, especially to WikiAnswers users since, unlike Yahoo! Answers, WikiAnswers does not provide users' profile pages on which they are able to provide their personal contact information (e.g.,

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<sup>7</sup> [https://www.facebook.com/onlineQA?ref=tn\\_tnmn](https://www.facebook.com/onlineQA?ref=tn_tnmn)

email, IM). The survey recruitment message was posted on a community/volunteer page in the top 50 major cities<sup>8</sup> within these two classified Websites. Since using the same subject in the posting for different cities could be automatically detected or suspected as spam, different subjects were used for posting the same survey recruitment message (e.g., “Participants for the WikiAnswers study!”, “WikiAnswers Survey: participants needed for the short survey”, “Seeking Yahoo! Answers users for the short online survey”, etc.). Moreover, the postings usually expired after a certain time period (e.g., 7 days) after they were created. New postings with a different subject for the survey recruitment message were then created weekly over the course of one month (Oct 22<sup>nd</sup>, 2013 to Nov 24<sup>th</sup>, 2013).

#### **4.4.2. Motivational and Expectation-based Variables**

To investigate motivations behind asking questions in online Q&A services, the dissertation conducted descriptive statistical analyses to measure participants’ responses on the survey questionnaire that identify different types of motivations, using factors indicated by previous typologies of motivations for media use (Katz, et al., 1973; McQuail, 1983).

These typologies were chosen in the study since they remain the most comprehensive account of user motivations of media use. Other previous research studies attempting to investigate motivations of the Internet use in different contexts have focused on a more narrow set of gratifications, which have limited the generalizability of the findings (Cho et al., 2003). Table 4.1 presents motivational factors and variables in quantitative analysis.

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<sup>8</sup> <http://www.infoplease.com/ipa/A0763098.html>



To identify an online Q&A user's expectations with respect to their responses to his/her question, this study used criteria identified by previous research studies on how people evaluate information within LIS (Adamic et al., 2008; Barry, 1994; Bateman, 1999; Janes et al., 2001; Kim et al., 2009; Rieh 2002; Shah & Kitzie, 2012; Wang & Soergel, 1998). Table 4.2 presents meta-analysis for identifying the expectation-based variables that were used in the study.

Table 4.1. Motivational variables in an Internet-based survey.

Motivation	Variables
Cognitive needs	Finding relevant information in immediate surroundings, society and the world Seeking advice or opinions for making decisions Learning; self-education through acquiring information Gaining a sense of security through knowledge
Affective needs	Looking for social and emotional support for personal issues Looking for social and emotional support for someone (e.g., family, friends, etc.) Looking for attainment on personal thoughts or ideas
Personal integrative needs	Finding support for one's own values Gaining insight into one's own life Experiencing empathy with problems of others
Social integrative needs	Identifying with others and gaining a sense of belonging Finding a basis for conversation and social interaction Having a substitute for real-life companionship Feeling connected with other people
Tension free needs	Having fun asking a question on Yahoo! Answers Filling time Emotional release

Table 4.2. Expectation-based variables in an Internet-based survey.

Expectation	Literature
Looking for quick responses	Kim, Oh, & Oh (2009); Shah & Kitzie (2012)
Looking for additional or alternative information	Adamic et al. (2008); Janes, Hill, & Rolfe (2001)
Looking for accurate or complete information	Bateman (1999); Rieh (2002); Taylor (1986); Wang & Soergel (1998)

Looking for social and/or emotional supports	Kim, Oh, & Oh (2009)
Looking for verification for own belief or knowledge	Barry (1994); Wang & Soergel (1998)
Looking for trustworthy sources	Rieh (2002); Shah & Kitzie (2012)

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#### 4.4.2. Phase 2 - Diary

The diary method was conducted with selected participants from the Internet-based survey in phase 1, in order to collect diary data for interview in phase 3. The goal of the interviews was to promote a greater understanding of contexts and situations that influence information seeking behavior within online Q&A environments. However, one of the challenges of interviews was that this methodological approach depends upon participants' ability to recall their previous behaviors. Brewer et al. (2004) argue that incomplete memory of events may cause inaccurate recall and response. Additionally, although a survey in phase 1 provided general characteristics of motivations and expectations for asking a question, failures of recall could reduce the accuracy of self-report measures (Crockett, Schulenberg, & Petersen, 1987) and cause "retrospective aggregate responses that reflect faulty reconstruction of the phenomena of interest" (Reis, 1994, p.585). Therefore, to overcome the potential issues of recall, a diary method was used to elicit information about online Q&A users' motivations and expectations for asking questions, as well as record their online information-seeking behaviors to contextualize their online Q&A activities before conducting interviews.

Moreover, since the diary method captured comprehensive records of users' events and activities online (Bruckman, 2006), as well as collected objective and quantitative information about online users' behavior patterns (Rieger, 2009), another

benefit of the diary method to this dissertation was to capture general information regarding participants' information-seeking behaviors that helped to broaden understandings of how and when online Q&A services were used to satisfy their needs in dynamic Web search environments.

A diary method was designed to capture “little experiences of everyday life that fill most of our working time and occupy the vast majority of our conscious attention” (Wheeler & Reis, 1991, p. 340). The benefits of the diary method in this dissertation are that this data collection method allowed research participants to report their events and experiences naturally and spontaneously (Reis, 1994). This data collection method has gained in popularity in the LIS field as a mean to understand human-centered perspectives of information behaviors in various contexts (e.g., see Byström & Järvelin, 1995; Hansen & Järvelin, 2005; Kuhlthau, 1991, 1993). Moreover, the diary method for addressing the research questions in this study was designed with “the short term between event occurrence and recording, hence, less subject to memory lapses and retrospective messaging, as may be the case with interviews” (Hyldegård, 2006, p. 154), which mitigate concerns of the potential incomplete recall in a transaction log. However, as Bolger, Davis, and Rafaeli (2003) argued, a diary design for collecting incident log data in this dissertation was concise and short. The diary was intended to take only a few minutes for participants to complete because this type of data collection method usually requires a certain level of participant commitment and dedication compared to other types of research studies.

To implement the diary method in phase 2, this study used an extension toolbar

for the Firefox and Chrome browser called Coagmento (<http://coagmento.org>) (see González-Ibáñez & Shah, 2012; Shah, 2010 for a detailed description of Coagmento). This extension toolbar served as a client-level log data collection tool, which automatically collected anonymized Web search information, but also allowed interview participants to manually keep a diary for their questioning behaviors each time they ask questions within online Q&A services.

The participants were asked to install an extension toolbar on their browsers (i.e., Firefox, Chrome) in order to collect diary data for 4 weeks prior to participating in interviews. Figure 4.2 depicts the two core components of an extension toolbar in this dissertation: (1) the toolbar – letting the participants connect to an extension toolbar into their Firefox browser; and (2) the sidebar - allowing the participants to keep a diary of their motivations and expectations each time they ask a question within online Q&A sites.

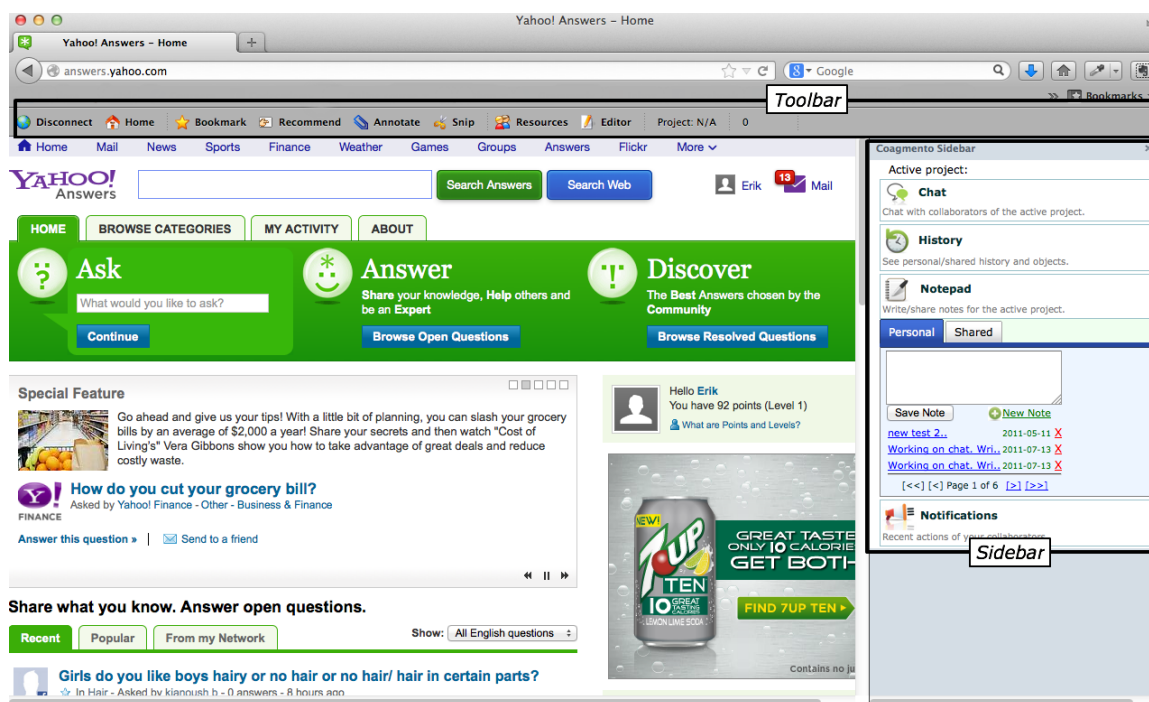


Figure 4.2. Components of an extension toolbar for diary data collection.

However, after the pilot study with two participants focusing on the clarity of using an extension toolbar for collecting diary data, it was found that they had difficulties keeping a diary of their questions, motivations, and expectations each time they posited a question. Thus, it was necessary to modify the extension toolbar's sidebar in order for participants to more systemically keep a diary of their motivations and expectations, which also helped facilitate more comprehensible data collection and analysis for the study. These pilot study results with the two participants were excluded from the full study. Figure 4.3 illustrates a modification of an extension toolbar's sidebar for the full study, which include semi-structured sections for: (1) a question asked by participants; (2) a check box for participants' motivational factors with comment; (3) a check box for participants' expectations with comments; (4) any other communication channels for asking a similar question or consulting their needs; and (5) additional comments for their information need.

**Your question**

**Motivation type**

[Click here for more details of each motivation type](#)

☐ Cognitive needs  
☐ Affective needs  
☐ Personal needs  
☐ Social needs  
☐ Tension free needs

**Comment on your motivation type**

**Expectation type**

☐ Looking for quick response  
☐ Looking for additional or alternative information  
☐ Looking for accurate or complete information  
☐ Looking for social and/or emotional support  
☐ Looking for verification for own belief/knowledge  
☐ Looking for trustworthy sources

**Comment on your expectation type**

**Did you ask a similar question via other channels?**

☐ No  
☐ Yes

**Additional comments for your question**

Figure 4.3. Screenshot of the browser sidebar for recording a diary instance.

The diary data collection spanned 4 weeks in order to obtain sufficient diary entries, especially instances of participants' motivations and expectations each time they use online Q&A site to ask a question. A shorter period of time for the diary data collection less than 4 weeks would collect insufficient data for analyses, while a longer period of time might increase the already significant burden on participants.

The findings from the pilot study for the survey with 75 Yahoo! Answers users showed that they normally ask one or two questions a month. This indicated that the diary data collection with approximately 20 participants for 4 weeks would generate approximately 25-30 incidents of asking a question. These incidents would then be used as the basis for interviews.

Table 4.3 illustrates types of information collected by this method for the study.

Additionally, there was a sidebar where the participants were required to manually keep their diary about motivations and expectations each time they asked a question within online Q&A sites (see Appendix 5 for the diary form in a sidebar).

Table 4.3. Outline of diary data collection.

Data collection tool	The extension plug-in for Firefox and Chrome browser
Participants	Approximately 18-24 selected participants from the survey in phase 1
Data collection duration	4 weeks
Diary scheme	Construct
question	Question participants ask within online Q&A sites
timestamp	Indication of specific user access time and date to keep their dairy
motivation	Motivational factors for asking a question
expectation	Expectations from other users with respect to their responses to the question
comments	Other experiences of questioning within online Q&A

#### 4.4.3. Phase 3 - Interview

Phone interviews were conducted with the same 18 individuals who participated in the diary data collection and represented each case identified through quantitative research in phase 1. Interviews were conducted with information about online Q&A users' motivations and expectations for asking questions elicited via diary data from phase 2.

Data collection for the interview in phase 3 was based on the principles of the Critical Incident Technique (CIT) to study more specific situations or incidents of the users' questioning behaviors for seeking information, as well as their expectations of others based on their questions on the online Q&A sites. The CIT was first developed by Flanagan (1954) for evaluating particular activities (Bycio & Allen, 2004; Jacoby & O'Brien, 2005). This technique has been applied in several information needs and uses

studies (Martyn & Lancaster, 1981), including a qualitative evaluation of how students perceive interactions with urban public librarians and library staff (Radford, 1999) and library systems and information use (Tonta, 1992; Wilkins & Leckie, 1997; Wilson, Starr-Schneidkraut & Cooper, 1989). As the CIT is designed to examine complex sets of behavioral intentions (Urquhart et al., 2003) with a flexible set of procedures designed to collect data on participants' behaviors during actual situations (Miller et al., 2000), this data collection approach for qualitative research enables the researcher to focus on each interview participant's specific situation or incident in which they are motivated to ask a question to fulfill their needs, what they ask, as well as their expectations of others based on their questions on the online Q&A sites.

Each phone interview took approximately 30 minutes to investigate the participants' motivations and expectations for asking questions. The interview was semi-structured featuring open-ended questions based on diary data. However, the interview protocol included probes that asked spontaneous questions in order to gain a better sense of new information about participants' questioning behaviors found during the interview.

Table 4.4. Overall design of interviews.

Data collection activities	Semi-structured phone interview Audio recording with permission of the interview participants
Participants	Same selected participants from the diary data collection



Interview structure	<p>Initial conversation will include the participants' general experiences of [the specific online Q&amp;A site] to ask a question based on their responses on the preliminary survey</p> <ul style="list-style-type: none"> <li>• How did you choose [the specific online Q&amp;A site] to ask questions for finding information? Why?</li> <li>• Did you use any other information search tools? Why?</li> <li>• How did you decide to ask a question on [the specific online Q&amp;A site] Why?</li> <li>• What kind of questions do you usually ask on [the specific online Q&amp;A site]? Why?</li> <li>• What were your expectations when asking questions on [the specific online Q&amp;A site]? Why?</li> <li>• What else could be done to search information besides [the specific online Q&amp;A site]? Why?</li> </ul> <p>Think of the incidents where you used [the specific online Q&amp;A site] to ask a question</p> <ul style="list-style-type: none"> <li>• How did you choose [the specific online Q&amp;A site] to ask a question for finding information? Why?</li> <li>• How did you decide not to ask a question on [the specific online Q&amp;A site] when seeking information? Why?</li> <li>• What were the general circumstances leading up to asking questions on [the specific online Q&amp;A site]?</li> <li>• Can you explain what you used [the specific online Q&amp;A site] were helpful at that time?</li> <li>• Why was [the specific online Q&amp;A site] helpful in searching information for you?</li> </ul>
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The interview was recorded with permission of the interview participants.

Additionally, to analyze the collected data, the data was transcribed into a word processor and organized by each unique critical incident identified in the question-answering process within online Q&A sites. Table 4.4 illustrates the interview design with examples of questions that address specific incidents and situations where participants are motivated to ask a question within online Q&A sites.

## 4.5. Data Analysis

### 4.5.1. Survey Data Analysis

Descriptive analyses were used first to describe the general characteristics of the survey participants' motivational factors behind asking questions (RQ1), as well as their expectations of others when asking question within online Q&A sites (RQ2). Descriptive statistical analyses provided not only frequency distributions of motivations and expectations, but also an overview of their demographic characteristics and general use of the Internet and online Q&A sites. This analysis helped to assess how well variables are correlated for each motivational factor. In the study, there were five motivational factors and several variables within each factor. Thus, to test reliability of variables in motivational factors, Cronbach's  $\alpha$  was measured for internal consistency reliability analysis (Santos, 1999). This analysis helped assess how well variables are correlated for each motivational factor.

To address RQ3, a series of linear regression analyses were also conducted to investigate the relationship between motivations and expectations influencing online Q&A users' questioning behaviors. Correlation coefficients were also calculated to depict the relationship between each of the two sets of variables in the study. Finally, clustering analysis was employed to group the survey participants based on their backgrounds and by their motivations and expectations for asking a question. This analysis provided insights into the diversity of motivation and expectation characteristics, which helped to identify the representative groups of Yahoo! Answers and WikiAnswers for qualitative data collection and analysis in phases 2 and 3.

#### **4.5.2. Diary Data Analysis**

Three levels of analyses were conducted to address the research questions.

These levels focused on information-seeking behaviors performed in the context of online Q&A with an emphasis on users' motivations (RQ1) and expectations (RQ2) for asking questions: (1) each participant's typical experiences, and how they differ in these experiences; (2) the time span of their experiences, and how they differ in their time span; and (3) processes underlying changes in participants' experiences, and how they differ in the processes (Bolger et al., 2003).

To understand participants' motivations and expectations in the questioning experiences within online Q&A sites, analysis focused on what types of motivations and expectations participants have for each incident of questioning and how these variables differ among participants. The types of questions were also examined to investigate the relationships between question type and a participant's motivations and expectations. Each participant's motivations and expectations were analyzed to examine how similar and/or different their motivations and expectations were for each question they asked within online Q&A throughout the time of the data collection (4 weeks).

Qualitative data collection and analysis using interviews was conducted to interpret meanings that people create in social phenomena (Denzin, 1994), which “develops a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study” (Creswell, 1998, p. 15). Multiple case studies (Stake, 1995) based on online Q&A users' experiences with emphasis on their motivations and expectations for asking questions were used.

A case study can be viewed as “a holistic inquiry that investigates a contemporary phenomenon within its natural setting” (Harling, 2002, p.1) in order to explore specific

real-time situations or incidents where people ask questions and address “why” questions (Darke, et al., 1998) within online Q&A. The data collected via diary data in phase 2 was used for examining these real-time situations or incidents among participants during interviews in phase 3.

#### **4.5.3. Interview Data Analysis**

The interview data was organized and prepared for analysis, and transcribed interviews and any other notes obtained during the interview were stored to develop codes and themes for qualitative analysis. Preliminary data exploration was conducted by reading through all data (e.g., transcripts, notes, etc.) collected during the interview.

This process was conducted “to obtain a general sense of the information and to reflect its meaning” (Creswell, 2003, p.191). The coding process consisted of “taking data or pictures, segmenting sentences (or paragraphs) or images into categories, and labeling those categories” (Creswell, 2003, p.192). Data analysis focused on developing detailed descriptions (e.g., themes) rendering information about online Q&A users’ motivations and expectations for asking questions. This process was useful in developing and comparing themes for each case, which reveal different perspectives on motivations and expectations for asking questions within each instance.

The data analysis process focused on cross-case approaches to qualitative research (Stake, 1995) to analyze how themes may be interconnected among the multiple cases of online Q&A users’ motivations and expectations. It focuses on interpreting and constructing meaning from the data from all cases. This stage was critical to synthesize the data analysis within-case and across- case approaches and report what lessons the

researcher learned (Lincoln & Guba, 1985) about online Q&A users' questioning processes through data collection and analysis. Moreover, since this study used a sequential mixed method design, conducting quantitative research followed by qualitative research, qualitative data findings and analyses in both phases 2 and 3 were integrated with those of quantitative research from phase 1 to enhance the overall findings that inform the research questions in the current study.

#### **4.5.4. Summary of Data Analysis**

This dissertation investigated online Q&A users' questioning behaviors with a specific focus on their motivations and expectations for asking questions within online Q&A sites. To do so, quantitative data collection and analysis using an Internet-based survey was conducted for providing a general and statistical overview of online Q&A users' motivations and expectations, as well as the relationships between motivations and expectations. The diary data collection and phone interviews helped provide deeper stories of multiple cases and enhance the findings from quantitative data collection and analysis (Hodgkin, 2008).

Overall, a core component of the study was guided by the qualitative approach for collecting and analyzing data via diary data and phone interviews. This provided a more comprehensive interpretation of online Q&A users' behavioral processes by incorporating an asker's motivations and expectations. The quantitative data collection and analysis using an Internet-based survey in phase 1 provided essential components for soliciting objective perspectives for the study, as well as identifying representative cases for the qualitative research approach using a diary method with follow-up interviews.

Moreover, the integration of the survey results and findings from diary data and interviews occurred in the final stage of data analysis, which will bolster understandings of online Q&A users' contexts of information seeking behavior.

## CHAPTER 5: FINDINGS

This chapter provides the details of findings identified by a sequential mixed method in the study. The overview of the data analysis was conducted in the three phases: (1) the Internet-based survey; (2) diary, and (3) interviews, are presented in Section 5.1. This includes detailed backgrounds of the participants in the survey, characteristics of the selected participants in the diary data collection and interviews, and how each method in the three phases was conducted in order to address the research questions.

In Section 5.2, the first research question attempted to address what motivates people to ask a question in online Q&A services. The findings of user motivations identified from both quantitative and qualitative data collection and analysis are presented. In Section 5.3, the second research question related to user expectations from other online Q&A users with respect to their answers to a question, which constitute personalized assessments of answer quality was discussed. The findings of user expectations from the survey, diary, and interviews in the research phases are presented. In Section 5.4, the third research question addressed how user motivations and expectations were correlated with one another based on an asker's unique situations in which he or she decided to ask a question in online Q&A services. Section 5.6 illustrates additional findings of the participants' questioning behaviors identified especially by analysis of the interview data. This is followed by a summary of all findings from the three methods in the study in Section 5.7.

## 5.1. Overview of the Data Analysis

### 5.1.1. Backgrounds of the Survey Participants

A total of 226 Yahoo! Answers and WikiAnswers users participated in the survey in order to collect quantitative information of general characteristics of online Q&A users, and draw statistical inferences of their motivations and expectations for asking a question. This section describes the general backgrounds of the survey participants from Yahoo! Answers and WikiAnswers (e.g., demographic characteristics, Web search behaviors, use of online Q&A services). 141 females (62.39%) and 85 males (37.61%) of Yahoo! Answers and WikiAnswers participated in the survey, and the average age of the survey participants was 32.96 years old (S.D.=13.17), ranging from 18 years old to 69 years old. The level of education among the survey participants was relatively high; 110 (48.67%) participants have some college degree (e.g., BA, BS, etc.) and 62 (27.43%) participants have an advanced degree (e.g., MA, MBA, PhD, etc.). Only 54 (23.89%) participants have high school or less than high school education. Table 5.1 shows all details of demographic characteristics of the survey participants.

Table 5.1. Demographic characteristics of the survey participants.

Characteristics	Yahoo! Answers users	
Gender	Female	141 (62.39%)
	Male	85 (37.61%)
Age	18-25	90 (39.82%)
	26-35	59 (26.11%)
	36-45	33 (14.60%)
	46-55	27 (11.95%)
	56 and up	17 (7.52%)
	Less than high school	10 (4.42%)
Education	High school graduate	44 (19.47%)
	College degree (e.g., AA, BA, BS, etc.)	110 (48.67%)
	Advanced degree (e.g., MA, PhD, etc.)	62 (27.43%)



As presented in Table 5.2, most survey participants reported that they conduct moderate to frequent Web searching to seek information (4-6 searches per day, n=37, 16.37%; 7-10 searches per day, n=44, 19.47%; More than 10 searches per day, n=103, 45.58%), while a small group of people (n=42, 18.58%) indicated that they do not actively use the Web. In regard to a history of online Q&A use, 108 (47.79%) participants have used more than one year and only 49 participants (21.68%) are relatively new to either Yahoo! Answers or WikiAnswers. Additionally, the surveyed participants were asked for information regarding their previous activities, especially the number of questions they have asked in Yahoo! Answers. It was found that most participants have asked less than 10 questions during their online Q&A use (n=95, 42.04%), followed by asking more than 40 questions (n=48, 21.24%), and asking 11-20 questions (n=39, 17.26%)

Table 5.2. General backgrounds of the use of Web including online Q&A.

Characteristics	Yahoo! Answers users	
Web search behavior	Occasionally	10 (4.42%)
	1-3 searches per day	32 (14.16%)
	4-6 searches per day	37 (16.37%)
	7-10 searches per day	44 (19.47%)
	More than 10 searches per day	103 (45.58%)
History of online Q&A use	Less than 1 month	49 (21.68%)
	1 - 6 months	37 (16.37%)
	6 - 12 months	32 (14.16%)
	13 - 24 months	31 (13.72%)
	More than 24 months	77 (34.07%)
A number of questions asked total in online Q&A	1-10 questions	95 (42.04%)
	11-20 questions	39 (17.26%)
	21-30 questions	31 (13.72%)
	31-40 questions	13 (5.75%)
	More than 40 questions	48 (21.24%)

As presented in Table 5.3, it was found that fact-finding and advice-seeking question are the most frequent question type that the participants ask in online Q&A services (fact-finding, Mean=3.07, 1.25; advice-seeking, Mean=3.02, S.D=1.29), followed by opinion-seeking question (Mean=2.91, S.D.=1.31) and fact-finding question (Mean=2.92, S.D=1.20). It was found that self expression is the least frequent question type people ask in online Q&A services (Mean=2.44, S.D.=1.35); 78 (34.51%) of the survey participants indicated that they never ask a question to express their thoughts or ideas without an explicit attempt of seeking information. These question types were measured on a 5-point Likert scale (1-Never to 5-Always) in this dissertation.

Table 5.3. Distribution of question types asked in online Q&A services.

	Fact-finding	Opinion seeking	Advice seeking	Self-expression
Mean (S.D.)	3.07 (1.25)	2.91 (1.31)	3.02 (1.29)	2.44 (1.35)
Never (1)	38 (16.81%)	46 (20.35%)	38 (16.81%)	78 (34.51%)
Seldom (2)	28 (12.38%)	38 (16.81%)	39 (17.26%)	48 (21.24%)
Sometimes (3)	65 (28.76%)	59 (26.11%)	60 (26.55%)	46 (20.35%)
Often (4)	70 (30.97%)	56 (10.01%)	58 (25.66%)	31 (13.72%)
Always (5)	25 (11.06%)	27 (11.95%)	31 (13.72%)	23 (10.18%)

### 5.1.2. Identifying Representatives from the Survey for Diary and Interviews

The 18 participants were selected from the survey, and recruited to participate in both diary and interviews. Hierarchical clustering analysis was first conducted in order to identify representatives of different groups of Yahoo! Answers and WikiAnswers participants from the survey. These groups were identified based on their survey responses to 34 questions that targeted their demographic background, Web search behaviors, questioning behaviors in the online Q&A services, and their motivational and expectation-based factors for asking a question. Ward's (1963) agglomerative method

was used for hierarchical clustering analysis because it is a useful procedure to identify mutually exclusive groups based on quantitative variables. This method also attempts to split the data in a fairly equal size since the main purpose of conducting hierarchical clustering in the study was to seek a wide range of instances that represent different cases of the survey participants and their questioning behaviors. Additionally, the mean city-block distance (Everitt, 1980) was used to calculate similarities in participants' responses since most survey questionnaires were created with the Likert-based scales.

Table 5.4. Features influencing to group the clusters within Yahoo! Answers.

Features	$\chi^2$	df	Sig
Backgrounds			
Age	684.668	396	.000**
Education	52.480	27	.002*
Frequency of Web use	57.693	36	.012*
Question types			
Advice seeking question	52.985	36	.034*
Self-expression question	74.577	36	.000**
Cognitive needs			
Finding relevant information	52.322	36	.039*
Seeking advice and/or opinion	87.298	36	.000**
Gaining a sense of security through knowledge	63.419	36	.003*
Affective needs			
Social and/or emotional support for personal own issues	99.629	36	.000**
Social and/or emotional support for someone's issues	99.150	36	.000**
Attainment on personal thoughts or ideas	93.060	36	.000**
Personal integrative needs			
Finding a support for own value	122.447	36	.000**
Gaining insights into own life	107.166	36	.000**
Finding empathy with others' problems	105.696	36	.000**
Social integrative needs			
Identifying with others and gaining a sense of belonging	129.741	36	.000**
Finding a basis for conversation and social interaction	135.154	36	.000**
Having a substitute for real life	86.642	36	.000**
Feeling connected	112.649	36	.000**
Tension free needs			
Having fun	74.256	36	.000**
filling time	68.672	36	.001*

Emotional release	86.183	36	.000**
Expectations			
Social or emotional support	95.997	36	.000**
Verification of own belief and knowledge	75.234	36	.000**

*Note* \*  $p < .05$ , \*\*  $p < .001$

First, in terms of analyzing the hierarchical clustering with the Yahoo! Answers survey data, a total of 10 groups of Yahoo! Answers survey participants were identified based on their demographic backgrounds, Web search behaviors, questioning behaviors in Yahoo! Answers, and their motivations and expectations for asking a question. The Pearson's Chi-square test identified that a total of 23 features out of 33 features of the Yahoo! Answers participants and their questioning behaviors were significantly different among the 10 groups identified from hierarchical clustering analysis. Table 5.4 illustrates each feature that has the significant influence on identifying the 10 different groups of Yahoo! Answers participants. Additionally, the characteristic of each feature among the ten identified groups in Yahoo! Answers are presented in Table 5.5.

Table 5.5. Characteristics of each group in Yahoo! Answers survey participants.

	Group 1 (n=10)	Group 2 (n=16)	Group 3 (n=13)	Group 4 (n=17)	Group 5 (n=14)	Group 6 (n=6)	Group 7 (n=7)	Group 8 (n=11)	Group 9 (n=17)	Group 10 (n=15)
Age	High	Low	Moderate	Moderate	High	High	High	Moderate	Low	Low
Education	Moderate	Low	Moderate to High	Moderate to High	Moderate	Moderate to High	Moderate	Moderate to High	Low	Low to Moderate
Gender (F/M)	5/5	8/8	6/7	9/8	9/5	2/4	5/2	5/6	14/3	10/5
Frequency of Web use	Moderate to High	High	Moderate	High	Moderate	Moderate	Moderate to High	High	Moderate to High	Moderate to High
Length of online QA use	High	High	Moderate to High	Low to Moderate	Moderate to High	High	High	Moderate	Low to Moderate	Low to Moderate
Number of question asked	Moderate	Moderate	Low to Moderate	Low	Low to Moderate	High	Moderate	Low	Low	Low
Fact	Moderate	Moderate	Low to Moderate	Moderate	Moderate	Moderate to High	Moderate	Moderate	Low to Moderate	Low
Opinion	Low to Moderate	Moderate to High	Moderate	Low	Moderate	Moderate	Low to Moderate	Moderate	Low to Moderate	Low to Moderate
Advice	Low to Moderate	Moderate to High	Moderate to High	Low to Moderate	Moderate to High	Low to Moderate	Low	Moderate	Low to Moderate	Moderate
Self-expression	Low to Moderate	Moderate	Moderate	Low	Low	Moderate	Low	Low	Moderate	Moderate
C1	Moderate	High	Moderate	Low to Moderate	Moderate	High	Low to Moderate	High	Moderate	Moderate
C2	Low to Moderate	High	Moderate to High	Low	Moderate	Moderate to High	Low	High	Moderate	Moderate

C3	Moderate to High	High	Moderate to High	Low to Moderate	Moderate	High	High	High	Moderate	Moderate
C4	Moderate to High	Moderate to High	Moderate	Low	Moderate to High	High	High	High	Low	Low to Moderate
A1	Low to Moderate	High	Moderate to High	Low	Moderate	Moderate	Low	Moderate	Low	Moderate to High
A2	Low to Moderate	Moderate to High	Moderate to High	Low	Low	Moderate	Low	Moderate	Low	Moderate
A3	Moderate	Moderate to High	High	Low	Moderate	High	Low	Moderate	Moderate	Moderate
P1	Moderate	Moderate to High	High	Low	Low to Moderate	High	Low	Low to Moderate	Low	Moderate
P2	Moderate	Moderate to High	Moderate to High	Low	Low to Moderate	High	Low	Moderate	Low	Moderate
P3	Moderate	Moderate to High	High	Low	Moderate	High	Low	Low to Moderate	Low	Moderate
S1	Moderate	Moderate to High	High	Low	Low to Moderate	High	Low	Low	Low	Moderate
S2	Low to Moderate	Moderate to High	High	Low	Low to Moderate	High	Low	Low to Moderate	Low	Moderate
S3	Low to Moderate	Low	Moderate	Low	Low	Moderate	Low	Low	Low	Low
S4	Moderate	Moderate	High	Low	Low to Moderate	High	Low	Low	Low	Low to Moderate
T1	High	High	Moderate to High	Low to Moderate	Moderate	High	High	Moderate to High	Moderate	Low to Moderate
T2	Low to Moderate	Moderate to High	Moderate	Low	Low to Moderate	High	Low	Low to Moderate	Low	Moderate
T3	Moderate	Moderate	Moderate	Low	Low to Moderate	High	Low	Low	Low	Moderate
E1	Moderate to High	High	Moderate	Moderate to High	Moderate to High	Moderate to High	High	Moderate	Moderate	High
E2	High	High	Moderate to High	Moderate to High	Moderate to High	Moderate to High	Moderate to High	Moderate to High	Moderate to High	Moderate
E3	High	High	Moderate	Moderate to High	High	High	High	Low	High	Moderate to High
E4	Low to Moderate	Moderate	Moderate to High	Low	Low to Moderate	Moderate	Low	Low	Low	Moderate
E5	Moderate to High	High	Moderate to High	Low to Moderate	Moderate	Moderate to High	Low to Moderate	Moderate to High	Low to Moderate	Moderate
E6	Moderate to High	High	Moderate	Moderate	High	Moderate to High	Moderate	Moderate to High	Moderate to High	Moderate

#### Motivations

C1: Finding relevant information in immediate surroundings, society and the world, C2: Seeking advice or opinions for making decisions, C3: Learning; self-education through acquiring information, C4: Gaining a sense of security through knowledge, A1: Looking for social and emotional support for personal issues, A2: Looking for social and emotional support for someone (e.g., family, friends, etc.), A3: Looking for attainment on personal thoughts or ideas, P1: Finding support for one's own values, P2: Gaining insight into one's own life, P3: Experiencing empathy with problems of others, S1: Identifying with others and gaining a sense of belonging, S2: Finding a basis for conversation and social interaction, S3: Having a substitute for real-life companionship, S4: Feeling connected with other people, T1: Having fun asking a question, T2: Filling time, T3: Emotional release

#### Expectations

E1: Quick responses, E2: Additional or alternative information, E3: Accurate and complete information, E4: Social and emotional supports, E5: Verification of own belief and knowledge, E6: Trustworthy sources

Second, hierarchical clustering analysis with the WikiAnswers survey data identified the eight different groups of WikiAnswers survey participants based on their demographic backgrounds, Web search behaviors, and questioning behaviors in WikiAnswers. 29 out of 33 features of the WikiAnswers participants and their questioning behaviors were significantly different among the eight groups identified from hierarchical clustering analysis. Table 5.6 illustrates each feature that highlights the

significant influence in grouping the clusters of WikiAnswers participants. Additionally, the characteristics of each feature among the ten identified groups in WikiAnswers are presented in Table 5.7.

Table 5.6. Features influencing to group the clusters within WikiAnswers data.

Features	$\chi^2$	df	Sig
Backgrounds			
Age	361.952	245	.000**
Frequency of Web use	45.889	28	.018*
History of WikiAnswers use	50.626	28	.006*
A number of questions asked in WikiAnswers	63.107	28	.000**
Question type			
Fact finding question	65.058	28	.000**
Opinion seeking question	50.360	28	.006*
Advice seeking question	62.929	28	.000**
Self-expression	86.018	28	.000**
Cognitive needs			
Finding relevant information	53.404	28	.003*
Seeking advice and/or opinion	64.071	28	.000**
Learning; self-education through acquiring information	72.749	28	.000**
Gaining a sense of security through knowledge	95.070	28	.000**
Affective needs			
Social and/or emotional support for personal own issues	126.029	28	.000**
Social and/or emotional support for someone's issues	116.554	28	.000**
Attainment on personal thoughts or ideas	76.892	28	.000**
Personal integrative needs			
Finding a support for own value	98.705	28	.000**
Gaining insights into own life	105.220	28	.000**
Finding empathy with others' problems	103.347	28	.000**
Social integrative needs			
Identifying with others and gaining a sense of belonging	120.925	28	.000**
Finding a basis for conversation and social interaction	125.106	28	.000**
Having a substitute for real life	129.327	28	.000**
Feeling connected	89.639	28	.000**
Tension free needs			
Having fun	55.000	28	.002*
filling time	90.547	28	.000**
Emotional release	98.655	28	.000**
Expectations			
Accurate or complete information	43.552	28	.031*

Social or emotional support	99.654	28	.000**
Verification of own belief and knowledge	76.554	28	.000**
Trustworthy information	58.356	28	.001*

*Note* \*  $p < .05$ , \*\*  $p < .001$

Table 5.7. Characteristics of each group in WikiAnswers survey participants.

	Group 1 (n=22)	Group 2 (n=11)	Group 3 (n=9)	Group 4 (n=16)	Group 5 (n=19)	Group 6 (n=6)	Group 7 (n=8)	Group 8 (n=9)
Age	Low	High	Moderate	Low	Moderate	Moderate	High	High
Education	Moderate	Moderate	Low to moderate	Low to moderate	Low to moderate	Moderate	Moderate	Low to moderate
Gender (F/M)	16/6	7/4	3/6	15/1	12/7	3/3	5/3	7/2
Frequency of Web use	High	High	Moderate to high	Moderate to high	Moderate to high	High	Moderate to high	Moderate to high
Length of online QA use	Low to moderate	High	High	Low to moderate	Low	Moderate	Low to moderate	Low
Number of question asked	Low	Moderate to high	Moderate	Low	Low	Moderate	Low	Low
Fact	Moderate	High	Moderate to high	Moderate	Low	High	Moderate	Low to moderate
Opinion	Low to moderate	Moderate to high	Moderate	Low to moderate	Low	High	Low to moderate	Low to moderate
Advice	Low to moderate	Moderate to high	Moderate	Moderate	Low	High	Low	Low to moderate
Self-expression	Low	High	Moderate to high	Low	Low	High	Low	Low
C1	Moderate to high	High	High	Moderate	Low to moderate	High	Moderate	Moderate
C2	Moderate	High	High	Moderate	Low	High	Low to moderate	Low to moderate
C3	Moderate to high	High	High	Moderate	Moderate	High	Moderate	Moderate to high
C4	High	High	High	Low	Low to moderate	High	Low to moderate	Moderate to high
A1	Moderate to high	High	Moderate	Low	Low	High	Low	Low to moderate
A2	Moderate to high	High	Moderate	Low	Low	High	Low	Low to moderate
A3	Moderate to high	High	Moderate to high	Moderate	Low	High	Low	Moderate to high
P1	Moderate to high	Moderate to high	Moderate	Low to moderate	Low	High	Low	Low to moderate
P2	Moderate to high	High	Moderate	Low to moderate	Low	High	Low	Moderate
P3	Moderate to high	High	Low to moderate	Low to moderate	Low	High	Low to moderate	Moderate
S1	Moderate	High	Moderate	Low to moderate	Low	High	Low	Moderate
S2	Moderate to high	High	Moderate	Moderate	Low	High	Low	Low to moderate
S3	Moderate	Moderate	Moderate	Low	Low	High	Low	Low
S4	Moderate	High	Moderate	Low to moderate	Low	High	Low	Low to moderate
T1	Moderate to high	High	Moderate	Moderate	Low to moderate	High	Low to moderate	Moderate to high
T2	Moderate	Moderate to high	Moderate	Moderate	Low	High	Low to moderate	Low to moderate
T3	Moderate	Moderate	Moderate	Low	Low	High	Low	Low to moderate
E1	High	High	Moderate to high	Moderate to high	Moderate to high	High	Low to moderate	Moderate to high
E2	High	High	Moderate to high	Moderate to high	Moderate to high	High	Moderate to high	Moderate to high
E3	Moderate to high	High	Moderate to high	High	Moderate	High	Moderate to high	Moderate to high
E4	Moderate to	Moderate to	Moderate to	Low to	Low	High	Low	Low to

E5	high Moderate to high	high High	high Moderate to high	moderate Moderate to high	Low	High	Low	moderate Moderate
E6	Moderate to high	High	Low to moderate	Moderate to high	Low to moderate	High	Low to moderate	Moderate

#### Motivations

C1: Finding relevant information in immediate surroundings, society and the world, C2: Seeking advice or opinions for making decisions, C3: Learning; self-education through acquiring information, C4: Gaining a sense of security through knowledge, A1: Looking for social and emotional support for personal issues, A2: Looking for social and emotional support for someone (e.g., family, friends, etc.), A3: Looking for attainment on personal thoughts or ideas, P1: Finding support for one's own values, P2: Gaining insight into one's own life, P3: Experiencing empathy with problems of others, S1: Identifying with others and gaining a sense of belonging, S2: Finding a basis for conversation and social interaction, S3: Having a substitute for real-life companionship, S4: Feeling connected with other people, T1: Having fun asking a question, T2: Filling time, T3: Emotional release

#### Expectations

E1: Quick responses, E2: Additional or alternative information, E3: Accurate and complete information, E4: Social and emotional supports, E5: Verification of own belief and knowledge, E6: Trustworthy sources

A total of 18 different groups were identified by hierarchical clustering analysis based on the participants' survey responses to questions regarding their backgrounds, as well as motivation and expectation for asking a question in Yahoo! Answers and WikiAnswers. Each group constitutes different sizes of survey participants, ranging from 6 to 22.

The first round of recruitment to seek participants from Yahoo! Answers was conducted via email, which the participants provided in the survey from Dec 19<sup>th</sup> to Dec 25<sup>th</sup>, 2013. An additional reminder email was sent out to those solicited in the week following the first survey distribution for the Yahoo! Answers survey participants. The second round of recruitment to identify participants from WikiAnswers went from Dec 26<sup>th</sup>, 2013 to Jan 3<sup>rd</sup>, 2014. An additional reminder email was also sent out to those solicited in the week following the first survey distribution for the WikiAnswers survey participants.

A couple of participants from each group were first recruited for the diary data collection and interviews, and the next group of participants was approached in case the first group of participants did not respond to the recruitment email. However, since the first six participants selected for the study dropped out, another recruitment phase was



conducted from Jan 25<sup>th</sup> to Feb 5<sup>th</sup>, 2014. The initial data collected by these six participants was excluded for data analysis.

Finally, a total of 18 participants, 10 participants from the Yahoo! Answers survey and 8 participants from the WikiAnswers survey, were recruited for the diary data collection and interviews. Each selected participant was representative of different cases in order to recruit these representatives for the diary data collection and interviews.

### **5.1.2. Backgrounds of Diary Data**

In the second phase, diary data was collected from the 18 participants for a 4-week period via the extension tool that was required to be installed on the participant's Web browser (i.e., Chrome, Firefox). The extension toolbar was mainly used for the diary data collection. 18 participants were required to write a short electronic diary for each time they asked a question in online Q&A (See Figure 8 for the design of the extension toolbar). Once the participants logged into the toolbar during their Web search session, other information such as their web page visits, web search queries, and time they visit specific sites including Yahoo! Answers and WikiAnswers were also automatically collected.

#### **5.1.2.1. Characteristics of the Participants in Diary**

A total of 18 participants from the survey in phase 1 were selected to participate in the diary data collection. The same 18 participants who participated in the diary data collection also participated in the follow-up interview to explore a set of cases relating to asking a question in online Q&A over a 4-week period. In order to provide better

understanding of each participant in the diary data collection and interviews, the descriptive of demographic profiles were presented in Table 5.8.

13 females (72.22%) and 5 males (27.78%) participated in the diary data collection, and an average age of the participants was 35.72 years old (S.D=14.41), ranging from 21 years old to 69 years old. The level of education among the participants was high; 16 (88.89) participants had at least some college degree (e.g., BA, BS, etc.), while only 2 (11.11%) participants had high school education.

Table 5.8. Demographic backgrounds of the participants in the diary data collection.

ID	Online Q&A	Age	Gender	Education	Occupation
YA2	Yahoo! Answers	26	Male	Some college degree	Tech support representative
YA4	Yahoo! Answers	21	Female	Some college degree	Student
YA6	Yahoo! Answers	69	Male	Advanced degree	Electrical Engineer
YA10	Yahoo! Answers	21	Female	Some college degree	Student
YA11	Yahoo! Answers	40	Female	Advanced degree	Homemaker
YA22	Yahoo! Answers	32	Male	Advanced degree	IT
YA44	Yahoo! Answers	59	Female	Advanced degree	Unemployed
YA55	Yahoo! Answers	27	Female	Some college degree	Business analyst
YA66	Yahoo! Answers	33	Female	Some college degree	Writer
YA77	Yahoo! Answers	21	Male	High school graduate	Student
WA1	WikiAnswers	27	Female	Some college degree	Training manager
WA2	WikiAnswers	41	Female	High school graduate	Disabled
WA4	WikiAnswers	24	Female	High school graduate	Direct support professional
WA5	WikiAnswers	30	Female	Some college degree	Government
WA6	WikiAnswers	61	Female	Some college degree	Retired
WA7	WikiAnswers	35	Female	Some college degree	EHR Trainer
WA8	WikiAnswers	45	Male	Some college degree	Dog Groomer
WA10	WikiAnswers	31	Female	Some college degree	Package handler

As presented in Table 5.9, it was found that 9 (50%) participants conduct frequent Web searches (i.e., more than 10 searches per day), while only 3 (16.67%) participants identified themselves as inactive Web searchers. The length of online Q&A use was fairly high among the participants. It was found a half of the participants have been using either Yahoo! Answers or WikiAnswers to ask questions for more than 24 months. In addition, the total number of questions asked in Online Q&A was fairly dispersed among the WikiAnswers survey participants. The participants reported that 7 (38.89%) participants have asked no more than 10 questions in online Q&A, while 7 (38.89%) participants have asked more than 30 questions in online Q&A.

Table 5.9. General backgrounds of the use of Web including Online Q&A.

ID	Frequency of Web search	History of Online Q&A use	A number of questions asked total in Online Q&A
YA2	More than 10 searches per day	More than 24 months	More than 40 questions
YA4	More than 10 searches per day	More than 24 months	21-30 questions
YA6	1-3 searches per day	1 - 6 months	1-10 questions
YA10	4-6 searches per day	More than 24 months	11-20 questions
YA11	4-6 searches per day	More than 24 months	More than 40 questions
YA22	7-10 searches per day	More than 24 months	21-30 questions
YA44	4-6 searches per day	6 - 12 months	1-10 questions
YA55	4-6 searches per day	1 - 6 months	1-10 questions
YA66	More than 10 searches per day	More than 24 months	11-20 questions
YA77	More than 10 searches per day	More than 24 months	More than 40 questions
WA1	4-6 searches per day	Less than 1 month	1-10 questions
WA2	1-3 searches per day	13 - 24 months	More than 40 questions

WA4	More than 10 searches per day	More than 24 months	More than 40 questions
WA5	More than 10 searches per day	Less than 1 month	1-10 questions
WA6	More than 10 searches per day	More than 24 months	1-10 questions
WA7	More than 10 searches per day	13 - 24 months	11-20 questions
WA8	1-3 searches per day	1 - 6 months	11-20 questions
WA10	More than 10 searches per day	Less than 1 month	1-10 questions

Different motivations and expectations were rated as the significant factors for asking a question based on the characteristics of each group in Yahoo! Answers. The findings indicate that while three Yahoo! Answers participants (YA22, YA44, and YA55) were less likely to look for social or emotional supports, the other three participants (YA2, YA6, and YA10) indicated that looking for social or emotional supports is sometimes a critical factor that satisfies their needs when asking a question in Yahoo! Answers.

Moreover, YA4, YA22, and YA55 reported that personal and social integrative needs are less significant motivational factors that drive them to ask a question, whereas these motivational factors are significant for asking a question between YA11 and YA6. Table 5.10 presents a summary of all characteristics of motivations and expectations for each participant in Yahoo! Answers.

Table 5.10. Characteristics of motivations and expectations for each participant in Yahoo! Answers.

	YA77	YA2	YA11	YA4	YA66	YA6	YA44	YA22	YA55	YA10
C1	Moderate	High	Moderate	Low to Moderate	Moderate	High	Low to Moderate	High	Moderate	Moderate
C2	Low to Moderate	High	Moderate to High	Low	Moderate	Moderate to High	Low	High	Moderate	Moderate
C3	Moderate to High	High	Moderate to High	Low to Moderate	Moderate	High	High	High	Moderate	Moderate
C4	Moderate	Moderate	Moderate	Low	Moderate	High	High	High	Low	Low to

A1	to High Low to Moderate	to High High	Moderate to High	Low	to High Moderate	Moderate	Low	Moderate	Low	Moderate to High
A2	Low to Moderate	Moderate to High	Moderate to High	Low	Low	Moderate	Low	Moderate	Low	Moderate
A3	Moderate	Moderate to High	Moderate to High	Low	Moderate	High	Low	Moderate	Moderate	Moderate
P1	Moderate	Moderate to High	High	Low	Low to Moderate	High	Low	Low to Moderate	Low	Moderate
P2	Moderate	Moderate to High	Moderate to High	Low	Low to Moderate	High	Low	Moderate	Low	Moderate
P3	Moderate	Moderate to High	Moderate to High	Low	Moderate	High	Low	Low to Moderate	Low	Moderate
S1	Moderate	Moderate to High	High	Low	Low to Moderate	High	Low	Low	Low	Moderate
S2	Low to Moderate	Moderate to High	High	Low	Low to Moderate	High	Low	Low to Moderate	Low	Moderate
S3	Low to Moderate	Low	Moderate	Low	Low	Moderate	Low	Low	Low	Low
S4	Moderate	Moderate	High	Low	Low to Moderate	High	Low	Low	Low	Low to Moderate
T1	High	High	Moderate to High	Low to Moderate	Moderate	High	High	Moderate to High	Moderate	Low to Moderate
T2	Low to Moderate	Moderate to High	Moderate	Low	Low to Moderate	High	Low	Low to Moderate	Low	Moderate
T3	Moderate	Moderate	Moderate	Low	Low to Moderate	High	Low	Low	Low	Moderate
E1	Moderate to High	High	Moderate	Moderate to High	Moderate to High	Moderate to High	High	Moderate	Moderate	High
E2	High	High	Moderate to High	Moderate to High	Moderate to High	Moderate to High	Moderate to High	Moderate to High	Moderate to High	Moderate
E3	High	High	Moderate	Moderate to High	High	High	High	Low	High	Moderate to High
E4	Low to Moderate	Moderate	Moderate to High	Low	Low to Moderate	Moderate	Low	Low	Low	Moderate
E5	Moderate to High	High	Moderate to High	Low to Moderate	Moderate	Moderate to High	Low to Moderate	Moderate to High	Low to Moderate	Moderate
E6	Moderate to High	High	Moderate	Moderate	High	Moderate to High	Moderate	Moderate to High	Moderate to High	Moderate

#### Motivations

C1: Finding relevant information in immediate surroundings, society and the world, C2: Seeking advice or opinions for making decisions, C3: Learning; self-education through acquiring information, C4: Gaining a sense of security through knowledge, A1: Looking for social and emotional support for personal issues, A2: Looking for social and emotional support for someone (e.g., family, friends, etc.), A3: Looking for attainment on personal thoughts or ideas, P1: Finding support for one's own values, P2: Gaining insight into one's own life, P3: Experiencing empathy with problems of others, S1: Identifying with others and gaining a sense of belonging, S2: Finding a basis for conversation and social interaction, S3: Having a substitute for real-life companionship, S4: Feeling connected with other people, T1: Having fun asking a question, T2: Filling time, T3: Emotional release

#### Expectations

E1: Quick responses, E2: Additional or alternative information, E3: Accurate and complete information, E4: Social and emotional supports, E5: Verification of own belief and knowledge, E6: Trustworthy sources

Similarly, the findings from the WikiAnswers survey indicates that two participants (WA6 and WA10) reported that they may not be motivated to ask a question in an affective state while the other two participants (WA5 and WA7) indicated that affective needs are one of the significant motivational factors that encourages them to ask a question in WikiAnswers. Furthermore, most participants from WikiAnswers specified that looking for quick responses is the significant factor that they expect from other WikiAnswers users to satisfy their needs, except for WA6. This participant indicated that accurate or complete information would more likely satisfy their needs. Table 5.11

presents a summary of all characteristics of motivations and expectations for each participant in Yahoo! Answers.

Table 5.11. Characteristics of motivations and expectations for each participant in WikiAnswers.

	WA4	WA7	WA8	WA4	WA10	WA5	WA6	WA2
C1	Moderate to high	High	High	Moderate	Low to moderate	High	Moderate	Moderate
C2	Moderate	High	High	Moderate	Low	High	Low to moderate	Low to moderate
C3	Moderate to high	High	High	Moderate	Moderate	High	Moderate	Moderate to high
C4	High	High	High	Low	Low to moderate	High	Low to moderate	Moderate to high
A1	Moderate to high	High	Moderate	Low	Low	High	Low	Low to moderate
A2	Moderate to high	High	Moderate	Low	Low	High	Low	Low to moderate
A3	Moderate to high	High	Moderate to high	Moderate	Low	High	Low	Moderate to high
P1	Moderate to high	Moderate to high	Moderate	Low to moderate	Low	High	Low	Low to moderate
P2	Moderate to high	High	Moderate	Low to moderate	Low	High	Low	Moderate
P3	Moderate to high	High	Low to moderate	Low to moderate	Low	High	Low to moderate	Moderate
S1	Moderate	High	Moderate	Low to moderate	Low	High	Low	Moderate
S2	Moderate to high	High	Moderate	Moderate	Low	High	Low	Low to moderate
S3	Moderate	Moderate	Moderate	Low	Low	High	Low	Low
S4	Moderate	High	Moderate	Low to moderate	Low	High	Low	Low to moderate
T1	Moderate to high	High	Moderate	Moderate	Low to moderate	High	Low to moderate	Moderate to high
T2	Moderate	Moderate to high	Moderate	Moderate	Low	High	Low to moderate	Low to moderate
T3	Moderate	Moderate	Moderate	Low	Low	High	Low	Low to moderate
E1	High	High	Moderate to high	Moderate to high	Moderate to high	High	Low to moderate	Moderate to high
E2	High	High	Moderate to high	Moderate to high	Moderate to high	High	Moderate to high	Moderate to high
E3	Moderate to high	High	Moderate to high	High	Moderate	High	Moderate to high	Moderate to high
E4	Moderate to high	Moderate to high	Moderate to high	Low to moderate	Low	High	Low	Low to moderate
E5	Moderate to high	High	Moderate to high	Moderate to high	Low	High	Low	Moderate
E6	Moderate to high	High	Low to moderate	Moderate to high	Low to moderate	High	Low to moderate	Moderate

#### Motivations

C1: Finding relevant information in immediate surroundings, society and the world, C2: Seeking advice or opinions for making decisions, C3: Learning; self-education through acquiring information, C4: Gaining a sense of security through knowledge, A1: Looking for social and emotional support for personal issues, A2: Looking for social and emotional support for someone (e.g., family, friends, etc.), A3: Looking for attainment on personal thoughts or ideas, P1: Finding support for one's own values, P2: Gaining insight into one's own life, P3: Experiencing empathy with problems of others, S1: Identifying with others and gaining a sense of belonging, S2: Finding a basis for conversation and social interaction, S3: Having a substitute for real-life companionship, S4: Feeling connected with other people, T1: Having fun asking a question, T2: Filling time, T3: Emotional release

#### Expectations

E1: Quick responses, E2: Additional or alternative information, E3: Accurate and complete information, E4: Social and emotional supports, E5: Verification of own belief and knowledge, E6: Trustworthy sources

### 5.1.2.2. Analysis of the Diary Data

A total of 112,476 web pages were recorded through the extension toolbar with 18

participants for 4 weeks. The average page visits among the participants was 6,140.33 (S.D=8,557.23), ranging from 111 to 30,856 page visits. This signifies that some participants in the diary data collection phase may likely be more active Web users than other participants. This may also signify that particular information search strategies in the online environments may cause more page visits depending on the topics or contexts of information seeking. During a 4-week period for collecting diary data, the participants were also required to write a diary about their motivations and expectations each time they asked a question in online Q&A.

As mentioned previously, a total of 205 diary data sets have been recorded through the extension toolbar. Each record included: (1) question; (2) motivation; (3) additional comment on motivation; (4) expectation; (5) additional comment on expectation; and (6) additional comment on general circumstances of which the participants decided to ask a question in online Q&A. In addition, there were other sections where the participants optionally specified other communication channels to seek information on a similar topic if they ever used them along with online Q&A. Table 5.12 shows an example of the diary data collection.

Table 5.12. Structure of diary data collection.

Diary data	Example
Question	How many people have been hurt by Obamacare?
Motivation	Personal integrative needs
Comment on motivation	The news is too skewed towards President Obama. Let's have a frank discussion of the pitfalls of Obamacare. Or maybe some responses will support it.
Expectation	Looking for verification for own belief or knowledge
Comment on expectation	I have a negative perspective of Obamacare. I feel strongly it will fail. Actually it's failed already. But what do others think?

Other communication channels (Yes or No)	Yes
Comments on other communication channels	Through a conversation with friends. In terms of political, healthcare, and the failings of our current President. It always brings of frank responses.
Additional comment	Sometimes with no justification. But sometimes overwhelming positive responses with zero reasons to back it up. This should be interesting to see unfold.

205 incidents of asking a question in Yahoo! Answers and WikiAnswers were collected by 18 participants during a 4-week of period of diary data collection. The participants were also required to choose a specific motivation and expectation and to provide a short narrative of their motivation and expectation each time they wrote their diary entry about the question. In terms of the timestamp generated each time the participants wrote a diary entry of asking a question, it was found that the question data set has a fairly equal split among the four different time points for a 24-hour period. Yet, the number of questions asked was slightly higher during the evening time period (see Table 5.13).

Table 5.13. Timestamps of all incidents of asking a question.

Time	Question Number
Morning (5:00 am – 11:59 am)	50 (24.39%)
Afternoon (12:00 pm – 4:59 pm)	52 (25.37%)
Evening (5:00 pm – 9:59 pm)	61 (29.76%)
Night (10:00 pm – 4:59 am)	42 (20.49%)
<i>Total</i>	<i>205 (100%)</i>

Types of questions the participants asked were investigated with a total of 205 questions collected during a 4-week period. To classify question types in the study, the coding scheme developed in the previous studies by Choi et al. (2012) and Harper et al.



(2009) was used. Table 61 presents types of questions with an example of each question type. Fact-finding questions are to solicit factual or objective information. Opinion-seeking questions are more likely constituted as an open-ended question that look for other peoples' thoughts or ideas about an asker's specific situation. Advice-seeking questions are asked to seek personal behavior guidance to resolve his/her problematic state. Self-expression is when people tend to express their own thoughts or ideas, but not necessarily seek responses from others in online Q&A (See Table 5.14).

Table 5.14. Example of each question type.

Question type	Example
Fact-finding question	What are the Four Noble Truths of Buddhism?
Opinion-seeking question	What current television series do you recommend?
Advice-seeking question	How do I get rid of PCOS symptoms?
Self-expression	Why are some people so negative when you being positive?

Two coders conducted content analysis for classifying question types. Coders first classified the question type with approximately 10% of the question set (N=20) together to ensure coding consistency throughout the process. The final Kappa value for intercoder reliability between the two coders was 0.678. Based on suggestions by Landis & Koch (1977) about Kappa values – 0.40 to 0.59 are considered moderate, 0.60 to 0.79 substantial, and 0.80 outstanding – it can be argued that the intercoder reliability for content analysis is acceptable in the study.

It was found that the distributions of frequencies for each type of between Yahoo! Answers and WikiAnswers were significantly different ( $\chi^2=34.282$ ,  $df=3$ ,  $p<.001$ ). The most frequent question type participants asked during the data collection was fact-finding

type, which they use to solicit factual information to solve their issues (N=101, 49.27%), followed by opinion-seeking questions (N=67, 32.68%) and advice-seeking questions (N=37, 18.04%).

However, it was found that people were more likely to ask a question to seek factual information within WikiAnswers (N=51, 67.11%), while opinion-seeking was the most frequent question type in Yahoo! Answers (N=58, 44.96%). This may suggest that people prefer to use Yahoo! Answers, a user-driven community environment, over WikiAnswers in order to ask questions that look for others' thoughts and ideas. People may perceive that WikiAnswers might be a better online Q&A than Yahoo! Answers in order to solicit factual information.

This partially supports the results from the previous study by Choi et al. (2012), which found that people ask information-seeking questions in WikiAnswers, collaborative online Q&A, while either advice- and/or opinion-seeking questions are more likely asked in Yahoo! Answers. Details of the distributions of frequencies for each type of question were shown in Table 5.15.

Table 5.15. Distribution of question types.

Question type	Yahoo! Answers	WikiAnswers	Total
Fact-finding question	50 (38.75%)	51 (67.11%)	101 (49.27%)
Opinion-seeking question	58 (44.96%)	9 (11.84%)	67 (32.68%)
Advice-seeking question	21 (16.28%)	16 (21.06%)	37 (18.04%)
Self-expression	2 (1.55%)	1 (1.31%)	3 (1.46%)
<i>Total</i>	<i>129</i>	<i>76</i>	<i>205 (100%)</i>

The question topics helped categorize how many questions, with an explicit expression of rewarding points, were asked in each topical category in Yahoo! Answers

and WikiAnswers. It was found that the participants asked a question most frequently in the “Health” category (N=27, 13.17%), followed by “Education & Reference” (N=16, 7.80%), “Business & Finance” (N=15, 7.32%), and “Entertainment & Music” (N=15, 7.32%). Table 5.16 illustrates the distributions of question topics that the participants asked during the diary data collection.

Table 5.16. Distribution of question topic by category.

Question topic	N
Arts & Humanities	2 (0.96%)
Beauty & Style	3 (1.46%)
Business & Finance	15 (7.32%)
Cars & Transportation	4 (1.95%)
Computers & the Internet	6 (2.93%)
Consumer Electronics	10 (4.88%)
Dining Out	1 (0.48%)
Education & Reference	16 (7.80%)
Entertainment & Music	15 (7.31%)
Environment	0
Family & Relationships	11 (5.37%)
Food & Drink	12 (6.34%)
Games & Recreation	8 (3.90%)
Health	27 (13.17%)
Home & Garden	6 (2.93%)
Local Businesses	0
News & Events	0
Pets	9 (4.39%)
Politics & Government	8 (3.90%)
Pregnancy & Parenting	1 (0.48%)
Science & Mathematics	14 (6.83%)
Social Science	9 (4.39%)
Society & Culture	13 (6.34%)
Sports	10 (4.88%)
Travel	6 (2.93%)
Total	205 (100%)

Of the 205 questions asked by the 18 participants during the diary data collection period, it was found cognitive needs were the most frequent motivational factor for asking a question among the participants (N=133, 64.88%). This was followed by personal integrative needs (N=21, 10.24%) and tension free needs (N=20, 9.76%).

The findings show that social integrative needs were the least significant motivational factor (N=14, 6.83%). It was found that there were statistically significant differences in motivational factors between Yahoo! Answers and WikiAnswers users ( $\chi^2=13.682$ ,  $df=4$ ,  $p<.05$ ). Especially, people were more likely motivated to ask a question for satisfying their personal integrative needs in WikiAnswers, while people were more interested in social interactions through the question-answering interactions in Yahoo! Answers. Additionally, tension free needs were found to be the stronger motivational factor that prompts people to ask a question in Yahoo! Answers. Table 5.17 presents a summary of distributions of all motivational factors in Yahoo! Answers and WikiAnswers.

Table 5.17. Distributions of motivation in all incidents (N=205).

Motivation	Online Q&A	N
Cognitive needs	Yahoo! Answers	81 (62.79%)
	WikiAnswers	52 (68.42%)
Affective needs	Yahoo! Answers	11 (8.53%)
	WikiAnswers	6 (7.89%)
Personal integrative needs	Yahoo! Answers	8 (6.20%)
	WikiAnswers	13 (17.11%)
Social integrative needs	Yahoo! Answers	13 (10.08%)
	WikiAnswers	1 (1.32%)
Tension free needs	Yahoo! Answers	16 (12.40%)
	WikiAnswers	4 (5.26)
<i>Total</i>	<i>Yahoo! Answers</i>	<i>129 (100%)</i>

In terms of cognitive needs, some participants included additional comments on their motivation where they specified that they were motivated to ask a question in a cognitive state, especially to solicit factual information in order to satisfy their needs in a specific situation.

“This question was asked based on an assignment that asked me to compile reasons why organizations were upgrading to ICD10.”

“I want to be able to identify the name since the painting spoke powerfully to me.. So when I share with others I can name it and show a part of myself with it.”

People also tend to be engaged in the question-answering processes to receive other peoples’ thoughts or ideas that help evaluate their problematic situations, but also behave in a certain way to resolve issues. The examples of this instance are:

“I want the opinion of people outside of our group of friends. The friendship I had is over, but I guess I'm seeking a sort of closure, as I can't communicate with the person who ended the friendship anymore, not that I still want to be friends with her.”

“I'm in the market for a laptop and I'm reconsidering my brand of choice of Toshiba Satellite Windows Laptop and would like to know other Windows users opinion on what is the best model/series/brand Windows Laptop out there right now.”

“I'm trying to make a list of movies I should watch while I'm on a 3 week break, but I want opinions from other people.”

Additionally, it was found that the participants perceive online Q&A as an online environment in which they may be able to learn something from other peoples’ experience and knowledge through the question-answering interactions, as one participant vocalized:

“I would like to learn about some experiences to see if this would be worthwhile

for me. I think it will be fulfilling but I would like to see if I am missing something that can go terribly wrong with the situation.”

“To learn how to make a study guide for pmbok 5th edition”

Personal integrative needs were found as the second most frequent influential motivation that drives people to ask a question in online Q&A during a 4-week diary data collection period (N=21, 10.24%). Because personal integrative needs are associated with an individual's self-desire to be more credible and stable, it was found that the participants had hoped to receive information through the question-answering interactions. This would then help the participants gain more insights into their understanding of a particular context or situation.

“The news is too skewed towards President Obama. Let's have a frank discussion of the pitfalls of Obamacare. Or maybe some responses will support it.”

“This site is in itself too good to be true. I often wonder if snopes is biased and who or what is funding it.”

It was found that tension free needs were the third most frequent motivational factor among the participants in online Q&A. This may indicate that online Q&A services could be used as a means of passing time or having fun (N=20, 9.75%). The question-answering interactions of other people in online Q&A forums are perceived not only as an information seeking behavior, but also as another type of activity that supports socio-emotional behaviors in the computer-mediated communication network.

“During my free time, I like to follow the NBA and I just wanted to get NBA fans opinion on which two players' skills would form the most talented NBA player.”

“I am bored and am curious about the thoughts of others.”

Finally, affective and social integrative needs were found as the least influential motivational factor for asking a question in online Q&A. However, even though affective needs were not a significant motivational factor compared to cognitive needs, which let people either solicit factual information and/or seek other peoples' advices or opinions, some participants had situations where they were needed for social or emotional support on their own personal issues or someone else's situations. The examples for these incidents are:

"The reason why I asked this question to understand the social and emotional aspect of why the girl would not want her boss to know to that we talk and are planning to hang out."

"Friend having difficult time during holidays"

In addition, people may not be strongly or frequently motivated to find companionship or identify with others in the online Q&A environment to develop social interactions although, they still value the feature of social interaction to receive relevant information for their needs. This result is similar to the findings from the Internet-based survey in phase 1. Yet, the comments from the participants indicate that sometimes people tend to create an open discussion where they may want to interact with other people in order to discuss personal or social issues.

"We have a newly elected Mayor who is spending tax payers money like it is her personal piggybank."

"Looking for social support and ideas to get my new dog socialized."

As there was an assumption that people behave in a certain way with the expectation that this type of behavior would satisfy their needs in the current study, the

participants were required to choose one of expectation-based factors, and specify their expectations of other people each time they wrote a diary about their question.

It was found that in terms of expectations of other online Q&A users with respect to the question that the participants asked during a 4-week diary data collection period, looking for accurate or complete information (N=77, 37.56%) was the most frequent expectation. The participants described that they were hoping to receive more accurate or complete information to their question in order to satisfy their needs:

“I was looking for accurate information about that person because I want to verify what I have read the article.”

“I was expecting a very scientific and accurate answer that I may have not been able to completely comprehend.”

“I was expecting a straight forward answer and a correct answer.”

It was found that looking for quick responses was the second most frequent expectation-based factor. This indicates that people conceive that they may satisfy their needs once this type of expectation was met during the question-answering processes (N=57, 27.80%) as some participants vocalized:

“Mainly just want a 1-2 word response.”

“I know I will get the right answers fast!!”

“Not sure. Want a fast answer, but not a pat answer.”

Finally, the participants reported that looking for additional or alternative information (N=36, 17.56%) was the third most frequent expectation, suggesting that people also tend to ask a question in online Q&A in order to receive second thoughts



from other users, or gain insights into their current events or activities through other peoples' opinions. The examples of this expectation are:

“I would like to see if there's more to the subject matter than I already know for my assignment.”

“I’m trying to get people opinion on what video camera will work best that is priced under \$1000 dollars and the pro and cons of the cameras they mention...I was looking to check out different examples before selecting one.”

Looking for verification of one's beliefs or knowledge and seeking trustworthy sources were found as the least frequent expectations that the participants looked for from other users when they asked a question in online Q&A.

Ultimately, it was found that there were no statistically significant differences in expectation-based factors between Yahoo! Answers and WikiAnswers ( $\chi^2=9.846$ ,  $df=6$ ,  $p=.131$ ). Table 5.18 presents a summary of the distributions of all expectation-based factors.

Table 5.18. Distributions of expectation in all incidents (N=205).

Expectation	Online Q&A	N
Looking for quick responses	Yahoo! Answers	28 (21.71%)
	WikiAnswers	29 (38.16%)
Looking for additional or alternative information	Yahoo! Answers	25 (19.38%)
	WikiAnswers	11 (14.47%)
Looking for accurate or complete information	Yahoo! Answers	51 (39.53%)
	WikiAnswers	26 (34.21%)
Looking for social or emotional supports	Yahoo! Answers	14 (10.85%)
	WikiAnswers	6 (7.89%)
Looking for verification for own belief or knowledge	Yahoo! Answers	8 (6.20%)
	WikiAnswers	1 (1.32%)
Looking for Trustworthiness	Yahoo! Answers	1 (0.78%)
	WikiAnswers	2 (2.63%)
Did not answer	Yahoo! Answers	2 (1.55%)

	WikiAnswers	1 (1.32%)
<i>Total</i>	<i>Yahoo! Answers</i>	<i>129 (100%)</i>
	<i>WikiAnswers</i>	<i>76 (100%)</i>

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Finally, another descriptive analysis was conducted to examine the relationship between motivations and expectations for asking a question in online Q&A. It was found that cognitive needs and seeking accurate or complete information were the factors most frequently correlated when asking a question during the diary data collection (N=61, 45.86%). This was followed by cognitive needs and looking for quick responses, (N=36, 27.07%) and cognitive needs and looking for additional or alternative needs (N=23, 17.29%).

Additionally, it was also found that such cognitive-related expectations (i.e., looking for quick responses, looking for additional or alternative information, and looking for accurate or complete information) were correlated with other motivational factors. For example, the participants also looked for either additional information or accurate information to satisfy their affective needs more than social or emotional supports, even though it was predictably assumed that affective needs might be highly correlated with looking for social or emotional supports. These findings may signify that the relationships between user motivations and expectations may be dynamically changed based on an asker's unique situation.

Interestingly, it was found that when people were motivated to ask a question to satisfy their tension free needs, (e.g., passing time, releasing emotion, etc.), they were more likely look for quick responses (N=8, 40%) than any other expectational factor. This indicates that timeliness in receiving answers would be a critical factor of how users'

tension free needs are fulfilled through the question-answering processes.

However, it was found from analysis of the diary data that there were no significant differences in the relationships between motivations and expectations between Yahoo! Answers and WikiAnswers. Table 5.19 presents a summary of relationships between motivations and expectations in all incidents generated by the participants in the diary data collection.

Table 5.19. Relationships between motivation and expectation in all incidents (N=205).

Motivation	Expectation	N
Cognitive needs	Looking for quick responses	36 (27.07%)
	Looking for additional or alternative information	23 (17.29%)
	Looking for accurate or complete information	61 (45.86%)
	Looking for social or emotional supports	8 (6.02%)
	Looking for verification for own belief or knowledge	2 (1.50%)
	Looking for Trustworthiness	2 (1.50%)
	Did not answer	1 (0.75%)
	Total	133 (100%)
Affective needs	Looking for quick responses	2 (11.76%)
	Looking for additional or alternative information	5 (29.41%)
	Looking for accurate or complete information	4 (23.53%)
	Looking for social or emotional supports	3 (17.65%)
	Looking for verification for own belief or knowledge	2 (11.76%)
	Looking for Trustworthiness	1 (5.88%)
	Total	17 (100%)
Personal integrative needs	Looking for quick responses	7 (33.33%)
	Looking for additional or alternative information	3 (14.28%)
	Looking for accurate or complete information	7 (33.33%)
	Looking for social or emotional supports	2 (9.52%)

Social integrative needs	Looking for verification for own belief or knowledge	1 (4.76%)
	Looking for Trustworthiness	0 (0%)
	Did not answer	1 (4.76%)
	Total	21 (100%)
	Looking for quick responses	4 (28.57%)
	Looking for additional or alternative information	1 (7.14%)
	Looking for accurate or complete information	3 (21.43%)
	Looking for social or emotional supports	0 (0%)
	Looking for verification for own belief or knowledge	3 (14.28%)
	Looking for Trustworthiness	0 (0%)
Tension free needs	Total	14 (100%)
	Looking for quick responses	8 (40%)
	Looking for additional or alternative information	4 (20%)
	Looking for accurate or complete information	2 (10%)
	Looking for social or emotional supports	4 (20%)
	Looking for verification for own belief or knowledge	1 (5%)
	Looking for Trustworthiness	0 (0%)
	Did not answer	1 (5%)

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#### 5.1.4. Backgrounds of Interview Data

The same selected 18 users who participated in the diary data collection in phase 2 were invited to complete interviews. This was a purposeful sampling to select different sample cases, which “represent the complexity of our world” (Creswell, 2002, p.194). This indicates that the 18 participants from Yahoo! Answers and WikiAnswers represent different motivational profiles and expectations for asking a question. 13 females (72.22%) and 5 males (27.78 %) participated in interviews. The average age of the

interview participants was 35.72 years old (S.D.=14.41), ranging from 21 years old to 69 years old.

The qualitative data analysis was based on not only the survey responses for each participant's general experience with online Q&A use, but also each individual participant's diary data collected via an extension toolbar. This tool bar was installed on each participant's Web browser (e.g., Chrome, Firefox) during phase 2. Each interview was recorded by an electronic audio recording device, and the interview data was transcribed into texts.

The coding process for the data was analyzed by two coders in order to verify the intercoder reliability (Lombard et al., 2005). In this section, the participants' interview data on motivation and expectation is presented in order to verify the survey responses collected in the phase 1, explore the meanings of each motivational factor behind asking a question in Yahoo! Answers and WikiAnswers, and discover any additional findings on how the participants were motivated (addressing RQ 1 and 2). Additionally, dynamic relationships between motivations and expectations are also presented in order to address RQ3.

## **5.2. RQ1: Motivation**

### **5.2.1. Analysis of the Survey Data**

The five motivational factors for asking a question in online Q&A services were investigated (i.e., cognitive needs, affective needs, personal integrative needs, social integrative needs, and tension free needs), and these motivational factors were measured

on a 5-point Likert scale in the survey (1-Strongly Disagree to 5-Agree). However, since each motivational factor has 3-4 sub-variables, internal consistency reliability was analyzed to investigate whether each sub-variable was correlated to measure the same motivational factor in online Q&A services. To do that, Cronbach's  $\alpha$  was used to measure internal consistency reliability within each motivational factor.

As Kline (1999) argued that a commonly accepted rule of thumb is that an  $\alpha$  of more than 0.6 is acceptable reliability, it can be argued that all sub-categories in motivational factors in both Yahoo! Answers and WikiAnswers are acceptable in the study. Table 5.20 presents details Cronbach's  $\alpha$  for each motivational factor in the study.

Table 5.20. Internal consistency reliability analysis.

Motivational factors	Number of sub-categories	Cronbach's $\alpha$	
		Yahoo! Answers	WikiAnswers
Cognitive needs	4	.646	.806
Affective needs	3	.828	.868
Personal integrative needs	3	.868	.861
Social integrative needs	4	.899	.917
Tension free needs	3	.686	.754

First, motivational factors for asking a question in Yahoo! Answers were investigated. As Table 5.21 presents, it was found that cognitive needs were the most prominent motivational factor for asking a question in both Yahoo! Answers (Mean=3.45, S.D=0.88) and WikiAnswers (Mean=3.57, S.D.=0.93), followed by tension fee needs (Yahoo! Answers, Mean=2.93, S.D.=1.02; WikiAnswers, Mean=3.05, S.D=1.02), personal integrative needs (Yahoo! Answers, Mean=2.86, S.D=1.18; WikiAnswers,

Mean=3.01, S.D.=1.13), and affective needs (Yahoo! Answers, Mean=2.76, S.D=1.14; WikiAnswers, Mean=3.03, S.D.=1.15).

Table 5.21. Descriptive statistics of motivations.

Motivations	Yahoo! Answers		WikiAnswers	
	Mean	S.D.	Mean	S.D.
Cognitive needs	3.45	0.88	3.57	0.93
Finding relevant information in immediate surroundings, society and the world	3.44	1.16	3.55	1.10
Seeking advice or opinion for making decisions	3.40	1.33	3.40	1.27
Learning; self-education through acquiring information	3.67	1.23	3.76	1.19
Gaining a sense of security through knowledge	3.29	1.34	3.55	1.16
Affective needs	2.76	1.14	3.03	1.15
Looking for social and emotional support for personal issues	2.70	1.40	2.87	1.33
Looking for social and emotional support for someone else (e.g., family, friends, etc.)	2.50	1.34	2.88	1.34
Looking for attainment on personal thoughts or ideas	3.08	1.22	3.35	1.19
Personal integrative needs	2.86	1.18	3.01	1.13
Finding support for one's own values	2.77	1.35	2.94	1.28
Gaining insight into one's own life	2.87	1.30	3.10	1.29
Experiencing empathy with others' problems	2.94	1.30	3.00	1.26
Social integrative needs	2.54	1.12	2.80	1.17
Identifying with others and gaining a sense of belonging	2.65	1.32	2.80	1.29
Finding a basis for conversation and social interaction	2.73	1.29	3.07	1.29
Having a substitute for real-life companionship	2.13	1.24	2.40	1.36
Feeling connected with other people	2.63	1.26	2.91	1.31
Tension free needs	2.93	1.02	3.05	1.02
Having fun asking a question	3.48	1.26	3.40	1.22
Filling time	2.81	1.31	3.12	1.17
Emotional release	2.51	1.35	2.62	1.35

In Yahoo! Answers, cognitive needs were found to be the most prominent motivational factor, especially learning. Self-education was the most influential

motivational variable in cognitive needs (Mean=3.67, S.D.=1.23). One of participants vocalized the way of using Yahoo! Answers to learn from responses posed by other Yahoo! Answers users:

“The answers are out of personal experience, making the answers to the questions seem more credible as well as entertaining to read. I like that there are more than one answers I can read and learn from.”

Another significant variable in cognitive needs was finding relevant information (Mean=3.44, S.D.=1.16) and seeking advice or opinions for making decisions (Mean=3.40, S.D.=1.33). This finding indicates that the participants tend to use Yahoo! Answers to receive relevant and precise information in order to solve their specific problematic situation as one participant stated:

“I used Yahoo! Answer for a very specific question [after] I searched for relevant information on Google (without getting a satisfying answer). I sense Yahoo! Answers can provide a detailed, tailored answer for my specific situation.”

Moreover, while some participants indicate that they use Yahoo! Answers to ask a fact-finding question to solicit relevant information, other participants were also motivated to interact with others Yahoo! Answers users through the question-answering interactions in order to receive more subjective responses such as opinions or advice for unique situations.

“I use Yahoo Answers when I am seeking advice and recommendations from other people. I use a search engine to find facts. I expect more subjective results from Yahoo Answers.”

“I like to hear people’s advice. People don’t know what you’re talking about so Yahoo! Answers is the only way out.”

In WikiAnswers, Similar to the findings from analysis of the Yahoo! Answer survey data, it was found that cognitive needs were identified as the most significant



motivational factor for asking a question. Especially, learning; self-education through acquiring information was the most significant sub-variable for asking a question in WikiAnswers (Mean=3.76, S.D.=1.19) as one participant vocalized the fact that people may perceive WikiAnswers as the virtual educational environment:

“I think it’s important that people become educated about (WikiAnswers) search type information resource, [b]ecome involved in the learning movement and understand that's about. It makes a better environment for all of us.”

Finding relevant information in immediate surroundings, society, and the world was also reported as a significant motivating variable driving the participants to ask a question in WikiAnswers (Mean=3.55, S.D.=1.10). As some WikiAnswers survey participants specified, one of main reasons that people tend to use WikiAnswers is to receive more relevant information to their specific question as opposed to looking through irrelevant information when searching through search engines such as Google.

“Main reason for using wiki answers is that often with a forum type setting you get the human element, which can often lead to better insight of an issue. The traditional Search engine method can often be suspect or lead to completely irrelevant information due to over-searching or perhaps due to the use of spiders (web crawlers) use of key words versus an actual human being viewing your question and giving thought to the question at hand directly.”

“Google doesn't understand the point of my asking a question. In WikiAnswers I get answers that feel personalized to my question and that don't have irrelevant information like with a search engine. I like knowing that somebody has thought about the exact thing I'm asking about.”

Additionally, the survey results disclosed that seeking advice or opinions for making decisions was another significant variable within cognitive needs (Mean=3.40, S.D.=1.27). This indicates that the participants may want to receive personalized opinions or advice from other users who have already experienced similar situations or

have expertise that helps resolve an asker's specific situation.

"Often I am looking for a quick answer to a situation and would like an array of opinions. The opinions are more direct and non-scripted and that's what I appreciate..."

"WikiAnswers gets straight to the point and gives you a few options/opinions to look at and it's up to you to look into them which I really like"

"Nobody has all the answers. Sometimes asking people questions helps they realize where they are and where they are going. History and Facts are easier to locate online. Life advice is harder to find and give."

"I used WikiAnswers when a Google search did not provide the answers I was looking for. I use it to get technical advice and can generally tell if the person knows what they are talking about."

It was found that tension free needs were the second significant motivational factor for asking a question in Yahoo! Answers (Mean=2.93, S.D.=1.02). Especially, having fun asking a question for tension free needs was the second most significant motivational variable for asking a question among all sub-variables in Yahoo! Answers (Mean=3.48, S.D=1.26) after learning; self-education through acquiring information (Mean=3.67, S.D=1.23) as participants stated:

"I use Yahoo! Answers mainly for amusement or to kill time. I answer questions in order to help people out, and I ask questions in order to read the answers. I usually do not trust it as a good source of accurate information, but it is useful for gauging peoples's opinions in some cases."

"I use yahoo answers because it is a fun website. It's a good tool when you are looking for answers that are tailored to your question and situation, something you can't always find when you embark on a general web search."

In WikiAnswers, tension free needs were also rated as the second most significant motivational factor driving people to ask a question in WikiAnswers (Mean=3.05, S.D.=1.02). Especially, having fun asking a question was the third most substantial sub-

variable (Mean=3.40, S.D.=1.35) that motivates people to ask a question, after learning; self-education through acquiring information (Mean=3.76, S.D.=1.19) and gaining a sense of security through knowledge (Mean=3.55, S.D.=1.16) from cognitive needs.

Furthermore, it was found that 68 survey participants (68%) reported that they are from moderate to strongly motivated to ask a question in WikiAnswers in order to pass their time. In these cases, participants, for example, specified their tension free needs for asking a question in WikiAnswers:

“[I] find it very informative and is a great way to kill time or just have some casual fun.”

“It helps to kill time. Also it’s funny to see people’s responses.”

“I’ve used WikiAnswers mainly to pass time (in-between asking questions on Yahoo! Answers). The answers I’ve received were mainly opinion-based and typically facts in one answer would come from many different sources.”

In terms of affective needs, analysis of the Yahoo! Answer survey data identified that looking for attainment on personals or ideas was a relatively higher influential motivation (Mean=3.08, S.D.=1.22) than looking for social and emotional support for personal issues (Mean=2.70, S.D.=1.40) and looking for social and emotional support for someone such as family members or friends (Mean=2.50, S.D.=1.34) within affective needs. Yet, one participant pointed out advantages of using Yahoo! Answers when seeking emotional support for personal issues.

“I’ve used Yahoo Answers over another search engine for the questions I’ve asked because I needed emotional/people-based answers to them. I was asking questions whose answers wouldn’t be explained by facts.”

The other participant also stated how Yahoo! Answers could be a helpful information resource to seek emotional supports.

“I believe that Yahoo! Answers is a great site to research information, get advice and help out others. If I am trying to find facts or educational answers then I would firstly try Google before asking Yahoo! Answers. If my question is emotional then I will tend to go to Yahoo to begin with. Generally, I am quite pleased with suitable answers I receive however in some cases people may answer unhelpfully and below expectations.”

Analysis of the WikiAnswers survey data indicates that affective needs were identified as the third most significant motivational factor for asking a question in WikiAnswers. It was found that looking for attainment on personal thoughts or ideas was relatively a higher influential motivation (Mean=3.35, S.D.=1.19) than looking for social and emotional support for personal issues (Mean=2.87, S.D.=1.33) and looking for social and emotional support for someone else (Mean=2.88, S.D.=1.34) within affective needs. However, even though looking for social and emotional support for either personal issues of their own and/or someone else's (e.g., family members, friends, etc.) issues was not relatively rated as a significant motivational factor. 59 WikiAnswers survey participants (59%) moderately to strongly agreed that they tend to ask a question to seek social or emotional supports for personal issues. 63 participants (63%) moderate to strongly agreed that they ask a question to seek social or emotional supports for someone else's issues.

Personal integrative needs were identified as the third most significant motivational factor for asking a question in Yahoo! Answers. Moreover, as Table 5.5 presents, it was found that the three sub-variables were rated at a fairly equal level. Since personal integrative needs were characterized as increasing self-esteem through finding support for one's own values, gaining insight into one's own life, or experiencing empathy with problems of others, one participated stressed how Yahoo! Answers is helpful to find supports from other people for their own values without being judged.

“I like yahoo answers because it connects you with a real person, one on one. I don't know the person and they don't know me and we are not together in person and will never meet, so I feel more free to express my thoughts without being judged. Also, since I don't know the person, I feel like I can be my real self and be honest, and can ask things or say things that I don't feel comfortable expressing with friends and family members.”

The other participant also stressed that responses received from other people in Yahoo!

Answers allowed them to experience empathy.

“I use Yahoo Answers to ask a question so as to get answers and opinions from different people and to see how their answers and insight measure up in regards to my question. The types of answers I get are more emphatic here than the answers given on other sites.”

In WikiAnswers, in terms of personal integrative needs, gaining insight into one's own life was ranked highest among sub-variables within personal integrative needs (Mean=3.10, S.D.=1.29), which indicates that people attempt to develop a better understanding of themselves by acquiring a variety of information. In this case, the participants, for example, stated:

“Sometimes different opinions offer more/various insights. WikiAnswers has proven to be helpful than other search engines sometimes”

“WikiAnswers is better than Google, Yahoo or any other search engine because it is more personal. I am able to speak with other people like myself who enjoy talking to others and finding out about questions or inquires of interests to them. If I use WikiAnswers, I know that the information I receive may not always be accurate or right on point with the question I asked entails, but most of the time it is very insightful for me.”

However, It was found that social integrative needs were the least influential factor that motivates people to ask a question within the context of Yahoo! Answers (Mean=2.54, S.D.=1.12) although it was assumed that people may prefer to use online Q&A services over other information resources (e.g., search engines) because online Q&A services allow people to socially interact with other people for seeking information

to satisfy their needs. However, it can be argued that people may not necessarily look for companionship/social connection or gaining a sense of belonging within a community of Yahoo! Answers, while social or conversational interactions are still important factors to find more tailored and personalized responses to their questions in Yahoo! Answers. In this sense, the participants from Yahoo! Answers vocalized how the features allowing social conversations still play an important role in Yahoo! Answers.

“I use Yahoo! Answers because it is a conversation between people and therefore seems relatable.”

“I used both Yahoo! [Answers] and a search engine to ask a question. Yahoo! Answers gives a more conversation type answer rather than a dictionary style answer from a search engine.”

It was noteworthy that 68 participants (58.97%) still reported having moderate to strong social integrative needs, especially finding a basis for conversation and social interaction, when asking a question in Yahoo! Answers, suggesting that a socio-affective factor plays a role that motivates people to be engaged in question-answering processes in Yahoo! Answers as one participant stated:

“More personal, you know there's real people out there..... My expectations? Just to interact with someone.....”

Similar to the findings from the Yahoo! Answers survey data, it was found that social integrative needs were the least significant motivational factor for asking a question in WikiAnswers (Mean=2.80, S.D.=1.17). Especially, having a substitute for real-life companionship was identified as the least significant motivational variable in all motivational factors (Mean=2.40, S.D=1.36). This may signify that people may not be necessarily driven to ask a question to actually find some companionship through the

question-answering processes, but favor the social components such as feeling connected or having conversation-based interactions with other people when seeking information in WikiAnswers. In this sense, the survey participants vocalized:

“I wanted some direct human interaction rather than a staid and possibly outdated answer. Also, it might be quicker to get a direct answer rather than sifting through pages of Google sites. Unfortunately, there is no way of knowing if the answer is accurate but it might put you on the right track to limit your search.”

“Main reason for using wiki answers is that often with a forum type setting you get the human element, which can often lead to better insight of an issue. The traditional Search engine method can often be suspect or lead to completely irrelevant information due to over-searching or perhaps due to the use of spiders (web crawlers) use of key words versus an actual human being viewing your question and giving thought to the question at hand directly.”

### **5.2.2. Analysis of the Diary Data**

In terms of motivational factors, for the 205 questions surveyed during the diary data collection period, it was found cognitive needs were the most frequent motivational factors for asking a question (N=133, 64.88%), followed by personal integrative needs (N=21, 10.24%) and tension free needs (N=20, 9.76%). The findings show that social integrative needs were the least significant motivational factor (N=14, 6.83%). It was found that there were statistical differences in the motivational factors between Yahoo! Answers and WikiAnswers ( $\chi^2=13.682$ ,  $df=4$ ,  $p<.05$ ). For instance, people were more likely motivated to ask a question for satisfying their personal integrative needs in WikiAnswers, while people were more interested in social interactions through the question-answering interactions in Yahoo! Answers. Additionally, tension free needs were found as the stronger motivational factor driving people to ask a question in Yahoo! Answers. However, there were less significant differences in cognitive and

affective needs for asking a question in both online Q&A services.

In terms of cognitive needs, some participants included an additional comment on their motivation where they specified that they were motivated to ask a question in a cognitive state, especially to solicit factual information in order to satisfy their needs in a specific situation.

“This question was asked based on an assignment that asked me to compile reasons why organizations were upgrading to ICD10.”

“I want to be able to identify the name since the painting spoke powerfully to me.. So when I share with others I can name it and show a part of myself with it.”

People also tend to be engaged in the question-answering processes to receive other peoples’ thoughts or ideas that help evaluate their problematic situations, but also behave in a certain way to resolve issues. The examples of this incident are:

“I want the opinion of people outside of our group of friends. The friendship I had is over, but I guess I'm seeking a sort of closure, as I can't communicate with the person who ended the friendship anymore, not that I still want to be friends with her.”

“I'm in the market for a laptop and I'm reconsidering my brand of choice of Toshiba Satellite Windows Laptop and would like to know other Windows users opinion on what is the best model/series/brand Windows Laptop out there right now.”

“I am trying to make a list of movies I should watch while I'm on a 3 week break, but I want opinions from other people.”

Additionally, it was found that the participants perceive online Q&A as one of many online environments in which they may be able to learn something from other peoples’ experience and knowledge through the question-answering interactions, as one participant vocalized:

“I would like to learn about some experiences to see if this would be worthwhile



for me. I think it will be fulfilling but I would like to see if I am missing something that can go terribly wrong with the situation.”

“To learn how to make a study guide for PMBOK 5th edition”

Personal integrative needs were found to be the second most frequent influential motivational factor that drives people to ask a question in online Q&A during a 4-week diary data collection period (N=21, 10.24%). Because personal integrative needs are associated with an individual’s self-desire to be more credible and stable, it was found that the participants hoped to receive information through the question-answering interactions. This ultimately helps the user gain more insight into their understanding of a particular context or situation.

“The news is too skewed towards President Obama. Let's have a frank discussion of the pitfalls of Obamacare. Or maybe some responses will support it.”

“This site is in itself too good to be true. I often wonder if snopes is biased and who or what is funding it.”

It was found that tension free needs were the third most frequent motivational factor among the participants in online Q&A, which may indicate that online Q&A services could be used as a means of passing time or having fun to release their tension (N=20, 9.75%). The question-answering interactions of other people in online Q&A are perceived as not only an information seeking behavior, but also as another type of activity that supports socio-emotional behaviors in the computer-mediated communication network.

“During my free time, I like to follow the NBA and I just wanted to get NBA fans opinion on which two players’ skills would form the most talented NBA player.”

“I am bored and am curious about the thoughts of others.”

Finally, affective and social integrative needs were the least influential motivational factor for asking a question in online Q&A. However, even though affective needs were not a significant motivational factor compared to cognitive needs, which let people either solicit factual information and/or seek the advice or opinions of others, some participants had situations where they needed social or emotional support for their personal issues or someone else’s situations. The examples for these incidents are:

“The reason why I asked this question to understand the social and emotional aspect of why the girl would not want her boss to know to that we talk and are planning to hang out.”

“Friend having difficult time during holidays”

In addition, similar to the findings from the Internet-based survey in the phase 1, people may not be strongly or frequently motivated to find companionship or identify with others in the online Q&A environment in order to develop social interactions, although they still value the feature of social interaction to receive relevant information for their needs. However, the comments from the participants indicate that in some instances people tend to create an open discussion where they may want to interact with other people in order to discuss personal or social issues.

“We have a newly elected Mayor who is spending tax payers money like it is her personal piggybank.”

“Looking for social support and ideas to get my new dog socialized.”

### **5.2.3. Analysis of the Interview Data**

In this section, five different motivational factors are presented based on the

interview data derived from the 205 questions asked by 18 participants in phase 2.

Additionally, an additional theme that emerged from the interview data is also illustrated.

#### **5.2.3.1. Cognitive Needs**

From the survey responses and diary data, it was confirmed that cognitive needs are the most influential motivating factor that drives people to ask a question in Yahoo! Answers and WikiAnswers. The survey data indicates that cognitive need was rated as the most frequent motivation in both Yahoo! Answers (Mean=3.45, S.D.=0.88) and WikiAnswers (Mean=3.57, S.D.=0.93). Cognitive needs were chosen as the-significant motivational factor for asking a question in 133 incidents (64.88%). However, although the survey responses indicated that there were no significant differences between Yahoo! Answers and WikiAnswers in terms of cognitive needs, classification of question types signifies that there may be some differences in the participants' cognitive needs. 82 questions were asked in Yahoo! Answers during the diary data collection. These were either opinion and/or advice-seeking (63.57%), whereas 53 questions asked in WikiAnswers were based on a fact-finding type (69.74%). This suggests that people are more likely to ask a question in WikiAnswers in order to find relevant information in immediate surroundings, society and the world, while Yahoo! Answers users are more likely motivated in a cognitive state for seeking advice or opinions for making decisions.

First, it was found that a fact-finding question is one prevalent question type that solicits objective and relevant information in order to satisfy an asker's need in a cognitive state. The examples for this incident are:

“I was watching the Olympics and I've always been into the sports and I was trying to figure out when it actually started because me and my brother had an

argument about it so it was more like sibling rivalry about who has the correct answer but it was interesting to find out the answer...I was watching the Olympics and I was like let's find out when this actually started."

"That one actually I was trying to learn what has vitamin C I knew some things had it but I needed others like more variety like fruit and vegetables and other stuff this was more like I needed to know like affective needs like I needed to know this answer but not like right away but it was interesting to find out how many different stuff there are."

"I always drink chamomile tea but I didn't know there were health benefits for it or if you don't drink it as a tea you can use it to dry eye puffiness which I didn't really know so it was a great response and it was a lot of information that I didn't know."

Also, another participant indicated that she attempted to ask a question in WikiAnswers in order to seek the newest information in her specific area, since she thought it would be beneficial to know up-to-date information.

"I'm in the HIT field and I wanted to get the latest accurate information about the latest EHR assistant today. I expect up to date answers and that's what I was trying to formulate my question around- to see an up to date answer provided because I am in the field... I kind of asked the question and afterwards I searched other online resources Google and other search engine websites and I wanted to compare answers."

Second, it was found that receiving more professional information and advice from subject experts is another significant motivational factor in cognitive needs that drives people to ask a question in Yahoo! Answers and WikiAnswers. This supports the finding from the survey responses in phase 1, which indicated that seeking advice or opinions for decision-making was one of the significant motivational factors for asking a question. In this sense, participants asked a question to receive more professional information or advice on a health condition. One participant asked a question about PCOS symptoms in order to receive more professional information or advice on her

health condition.

“I have PCOS it's a condition and it is very hard to figure out. It has a lot of symptoms and so I just googled this on yahoo to find answers about how to get rid of the condition and there's really nobody that will help you there's no doctor, you have to go to an endocrinologist, I looked all over the place for answers... I've been to the doctor they said that I have to wait and some of it will go away and I have a lot of questions because it messes up with your whole body because it messes with your hair and it won't go back to being normal like itchy scalp all of a sudden I have an itchy scalp and they don't even care about your hair its just really hard to get help for things that PCOS does to you.”

The other participant also asked a health-related question in WikiAnswers in order to receive more professional advice.

“I received the lab value when I went to my therapist they had a lab done and the therapist was in a clinic and I was doing a regular blood draw and was told that that was very low but I'm like going in taking vitamin c to increase this- I didn't know white blood count was a little different because the doctor said was red blood count was iron but they didn't really talk about what I could do for my white and in order for my own health and for correction of bad labs, I wanted to do something that was effective, efficient but not interacting with something and making me do that at the detriment of some other - you know something with toxins.”

Another example was based on one participant's finance-related situation where she needed professional advice on setting up a trust fund.

“I am retired and trying to consolidate my assets and I have found it very complicated so I was looking for some guidance. My financial advisor suggested I needed to set up a trust fund....I have a financial advisor and sometimes I have trouble communicating with him. I was looking for a simple financier [in WikiAnswers].... I was trying to resolve my confusion from what I heard from my financial advisor which - the need to set up a trust fund didn't seem necessary to me.”

This participant also visited different websites through a search engine after asking questions to get more detailed information about her question in order to verify an answer received in WikiAnswers. She indicated that personal advice from WikiAnswers helped

her to decide what she needed to do. It also provided a better understanding of what her financial advisor indicated for her situation.

“[T]he next day I discussed it with my financial advisor and I was better able to understand what he was saying.”

Similarly, one participant had a technical issue related to her mother’s cell phone. She indicated that she was not familiar with a cell phone service, and thus wanted to ask a question in Yahoo! Answers to receive specific information specific to her question from other Yahoo! Answers users who have expertise in this area.

“My mom gave me her cellphone and she had a contract and it was up. I’m trying to figure out how to get more minutes I called the person who makes it Samsung or LG and I still don’t know. I needed to be more specific.... I’m not savvy with phones I don’t have a cellphone so I always got pay as you go ones so this one is different I don’t know if I can just take her cellphone and add minutes”

In another case, one participant asked a question about how to stop food from getting between their gums and teeth in Yahoo! Answers with a hope of receiving reliable information from experts who may offer ideas to help her to solve her problematic situation.

“I was getting food in my gums and I don’t know how to prevent it from going in my gums so I was wondering how do people stop this because all I do is floss my teeth so I wish there was a way to prevent it I was looking for some answers [from] a dental assistant or someone who works in the profession or someone who had the same thing happen to them.”

Additionally, another participant asked a question in WikiAnswers to get more detailed information from people who have encountered similar issues, problems, or experiences. For example, one participant needed to ask a question about using online Turbo Tax site to file state taxes for a married same-sex couple.

“I have been studying the tax law in Virginia and its very frustrating and complicated. We normally file our taxes on turbo tax but this year it’s going to be

a nightmare..... We're married we know how to file our federal taxes together but VA will not accept that so then we have to file individual returns we have to create a dummy federal return individually and then use that to prepare our Virginia taxes..... It's very complicated and very frustrating. I was hoping that someone had perhaps up to date information from what I could find on the VA tax. I have gone to the VA tax law site and I was hoping. I found information I didn't like which was that we had to file two different ways so I was hoping someone had different information [in WikiAnswers] and I had also gone to turbo tax and I found contradictory information..... I got a good answer, not an answer I liked but it was good enough it confirmed the fact that we would have to file 4 different tax returns between federal and state.”

Third, participants indicated that one strong reason that prompted them to use online Q&A was to explore others' recommendations. This also illustrates that online Q&A users value the interactions with other people in the context of online Q&A in order to seek and share personalized idea or thought on in a wide range of topics or areas for the best course of an asker's action in the near future. Table 5.22 presents the participants' comments on seeking other peoples' opinion or idea as recommendation, as well as questions they asked in Yahoo! Answers and WikiAnswers.

Table 5.22. Comments on seeking others' opinion or idea.

Question	Comment
What is the best video camera to film YouTube videos for under 1000 dollars?	I was just trying to see other opinions because a lot of people have different opinions about cameras.
What is the different between garam masala and hot madras curry powder sold as a McCormick Blend?	I was cooking a recipe and I was looking for a cognitive answer to see if I could substitute one for the other.... I would say I got an interesting answer but I don't think it is true. Interesting but not necessarily correct but I was satisfied I was happy that someone answered.
What toys would you suggest trying with a recently tamed feral kitten?	My husband's cat had found a feral kitten outside and we haven't been able to have cats or dogs for a while so I took the kitten from him but he was very scared and didn't want to play very much so I was looking for some feedback to see what toys could draw him out a little bit more and make him social.

Is there a best way to get an Indy film in a festival?	I have gone to film festivals and I wanted to see about making a film myself and I wanted to see because I've always heard how difficult it was to get into a film festival I was hoping someone might have answer.... I thought there might be people who have done this already and who might have extra tips.
What is a homemade natural remedy for ulcerative colitis?	Well I have ulcerative colitis which means that sometimes certain foods are not good for you and I don't like taking medicine so I wanted to find something that would be a natural remedy not drugs.

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Finally, the participants from the interviews implicitly and explicitly pointed out that learning is a critical factor that people are willingly involved in during the question-answering interactions. It seemed that learning, self-education through acquiring information as one of the sub-categories within cognitive needs, was not mutually exclusive with other sub-categories when people asked a question in online Q&A. In other words, a need for learning in a cognitive state might be a predetermined condition that lets them ask a question in order to receive factual information and/or others' advice or opinion to solve their problematic situations. The following quotes are examples of how a learning process was explicitly developed through the question-answering interactions between an asker and answerer(s).

“That one actually I was trying to learn what has vitamin c I knew some things had it but I needed others like more variety like fruit and vegetables and other stuff this was more like I needed to know like affective needs like I needed to know this answer but not like right away but it was interesting to find out how many different stuff there is.”

“My main motivation really was to learn more about libertarians and to see if there's any facts to that not just opinions but the political party they come from what they're about.”

“Well in general I try to learn something new every day because I'm



alone a lot so I do a lot of googling and browsing and I usually learn something new and I think it's interesting I just wanted to know if anyone else does the same thing."

Moreover, the participants also implicitly indicated that they looked for information from others when asking a question in online Q&A in order to learn something in his/her interests. The examples in this case are:

"I have a game console called PS Vita and I was wondering like will the existing accessories work for the new version that's coming out soon and there's no question on Google and nothing came up so that's why I customized and personalized that question."

"This question I asked because I'm a first time home buyer and I was looking around and before purchasing a home what are some low cost not too expensive remodeling to increase the value of a house, I didn't know anything and I didn't look on Google so I just asked this question.... Opinions and cognitive information that people have used and I asked this in the decorating and remodeling category I figured they had good information.... the user I remember said painting, fixing the kitchen and add more appeal and something with the light fixtures upgrading those."

"I was going camping and we were getting ready and I asked this question because we have raw flaxseeds I remember back in school you can't just eat raw flaxseeds so I asked this question just to be sure and someone did answer you can't just eat it raw you have to cook it."

"I have grandparents they came from Vietnam and they were here but their visa expired and when I bought the plane tickets I realized their passport is valid but their visa is not so I wanted to know what happens and I googled for this question but Google didn't show me a specific answer so I asked yahoo answers and I got a quick response from knowledgeable people about immigration and they gave me a link and basically said once the visa expired they cannot go back to the U.S."

Overall, as one participant pointed out, Yahoo! Answers provides a good educational setting in which people including young students are able to learn something. This environment is compared to other online sites where many gossips and uncensored stories are provided. He thinks that these sites would be not appropriate from an

educational point of view. This participant also indicated that in Yahoo! Answers, he can engage in numerous interactions with other people who have expertise in a wide range of areas. This helps him learn through the question-answering processes.

#### **5.2.3.2. Affective Needs**

Another motivational factor measured in the study was affective needs, which indicates that people are motivated to ask a question in order to receive emotional or social supports for an asker's current issues in some degree, not necessarily seek information.

From the survey responses, it was found that affective needs are a moderately frequent motivational factor that influence people to participate in the question-answering interaction in both online Q&A sites (Mean=2.76, S.D.=1.14 in Yahoo! Answers; Mean=3.03, S.D.=1.15 in WikiAnswers). In addition, 17 questions (8.29%) were asked in order to satisfy their affective needs with different expectations; more details of expectations and relationships between motivations and expectations will be presented in the following section.

Another data analysis was conducted to determine if there were differences in affective needs between Yahoo! Answers and WikiAnswers. It was found that overall there were no statistically significant differences. Yet, looking for social and emotional support for someone else, one of sub-categories within affective needs, was rated slightly higher in WikiAnswers;  $t(224)=2.118$ ,  $p=.035$ .

In qualitative analysis with the interview data, it was found that although people still attempted to look for factual information, personal advice, or opinions to solve their

problematic situations, they indicated that their primary need for asking a question was to satisfy an affective need in some cases. This suggests that it might not be possible to identify a primary motivational factor by only analyzing the content of a question they asked. For instance, one participant asked a question about dating the friend of a mutual Facebook friend, and looked for others' thoughts or opinions about her situation.

However, she indicated her motivation as a result of affective needs:

“I'm dating someone who was actually friends with one of my Facebook friends before they dated me.... I guess for me, I have people telling me I'm doing the wrong thing but I don't think I am. I wanted to see if other people think. [I want to] get an opinion from someone who's not directly involved in the situation.”

Although she wanted to receive unbiased opinions from the forum users, she vocalized that she hoped her decision regarding the relationship would be supported.

In another case, one participant from WikiAnswers with affective needs, asked a question about the most effective anti-depression treatment. She encountered a personal mental issue related to depression and thus began searching for any recommendations or suggestions for a mental therapy.

“Well, I have issues with being umm.... affected by the seasons where I live and I was trying to find effectiveness of some of the supplements and things that people use and I had a therapy appointment and I wanted to go in if my therapist recommended something knowing what the implications or benefits of that.”

In this case, the nature of question itself may indicate that she wanted to receive more professional advice or personal experiences regarding solutions for successfully coping with depression. However, she indicated that she actually looked for social and emotional supports from others through question-answering interactions. Additionally, she asked another question to get information about whether or not hypnosis was effective.

“Well it was kind of a cross reference about the question about the tongues and

the anti-depression. Hypnosis I've always been kind of curious.... does it help relax someone is it.... who does it work for, how does it happen....”

People also asked questions to receive social or emotional support for someone else such as family members or friends. One participant asked a question about a 2202 psychiatric hold.

“I had a friend on Facebook saying that she was - based on an attempt she had to harm herself and I was like wow... what does that involve? How severe is it? Is she under a watch? Or I was just very concerned for her well-being and who got involved I wanted to be a friend and support her....”

This case illustrates that the question asker wanted to empathize and understand what a message to her meant through understanding what a 2202 psychiatric hold is.

Another participant from Yahoo! Answers asked a question about how to cope with the bad economy.

“This question is kind of lingering right now kind of one of the hot topics like with health care kind of the economy. I had some friends that their mortgage rates went up a couple years ago, now they're ok but their mortgage went up to almost 1k a month and they were paying less than half that before and they were struggling to stay afloat and pretty much their entire paycheck went into paying that and I felt bad for them and it was a question that sparked in my head. Thinking about then and you watch in the news and you read the newspapers and it still- a lot of that going on. When I asked the question the responses were actually a lot of them were they're telling me their stories where a lot of them were struggling. I didn't really receive a positive answer to it- versus oh I'm doing ok. A lot of them were just struggling surviving.”

He described how his friends were recently struggling in terms of their financial situations, but had a hard time discussing it with them since it was a difficult question to bring up.

“It's hard to bring up these topics and in general talk because there is a sense of - you have to involve the ego and pride and everything kind of factors into it and those are things you really don't want to talk and there's issues of masculinity that they don't want to discuss because for males you're supposed to be able to handle the real world and everything that goes on and it includes paying bills and paying

rent and paying for their kids.”

Thus, this participant wanted to ask a question on Yahoo! Answers in order to find out how other people have fared during a financially difficult time. He then thought that by understanding others’ experiences, he might be able to talk to his friends more carefully.

Although the survey responses revealed that people sometimes ask a question for social or emotional support for someone else in WikiAnswers more than people do in Yahoo! Answers, it was not clearly found if there would be a significant difference in both sites because: (1) incidents of affective needs were too small to investigate statistical significance (N=17); and (2) most incidents of this motivational factor retrieved during the diary data collection were based on social or emotional supports for own issues and problems.

#### **5.2.3.3. Personal Integrative Needs**

It was found that personal integrative needs were a moderately frequent motivational factor that influenced users to participate in the question-answering interaction in both online Q&A sites (Mean=2.86 S.D.=1.18 in Yahoo! Answers; Mean=3.01, S.D.=1.13 in WikiAnswers). The diary data indicates that personal integrative needs are the second most frequent motivational factor that drives people to ask a question in Yahoo! Answers and WikiAnswers (N=21, 10.24%), followed by cognitive needs (N=133, 64.88%). Even though it was found that there were no statistically significant differences in personal integrative needs between Yahoo! Answers and WikiAnswers, the WikiAnswers participants asked questions more often to satisfy their personal integrative needs than the Yahoo! Answers participants did during

the diary data collection.

Personal integrative needs are based on self-esteem. This quality is usually strengthened when people reassure their idea in a state of their knowledge or status in a society. Thus, it can be assumed that when people ask a question to satisfy their needs in a personal integrative state, they tend to use information or others' opinions and ideas to increase stability, gain credibility, and reinforce their own beliefs.

One participant from Yahoo! Answers used to be more creative and work on photography and film. However, she found that she has not been inspired or able to even think creatively about the projects. Prompted by these concerns, she asked a question about how to think creatively again in Yahoo! Answers.

“I do photography and film, but for the past year, I haven't been inspired or able to even think creatively about projects. I was trying to get any suggestions on how to get the creative juices flowing....”

Her motivation was related to personal integrative needs, and she attempted to seek supportive ideas to get her creative minds back or gain more insights into her creativity through a variety of suggestions from other Yahoo! Answers users.

Another participant asked about the potential negative effects of Obamacare in order to get different perspectives on how people perceive the new health care system. The participant believed that an open discussion through the question-answering interaction in Yahoo! Answers would help him gain insightful ideas regarding the health system.

“I came in with a negative perspective on health care. I wanted to see what other people thought about it and people who it affected directly, even they weren't happy with it either so it was kind of interesting the people who it was supposed to help weren't happy either and the people who were well off they didn't really care, they just said they liked Obamacare just because of Obama so pretty

interesting in how they justified it.”

Then, this participant also indicated that he received interesting and satisfactory information for his question at this time.

“Yes, I did because it was all different backgrounds so it was interesting to see people who were for it and affected and the people who were affected by it most actually were against it because they're going to get penalized if they don't apply to it by the end of March.”

Another case related to personal integrative needs was people asking a question for finding a do-it-yourself solution or method (Wolf & McQuitty, 2011). For example, one participant asked about how to change the hood release hatch in WikiAnswers to get information.

“My hood release hatch on my car broke so I was trying to find what was the best way to fix it.... I was trying to fix it myself and it just broke but I got it fixed so all is good.”

She indicated that her primary motivation was personal integrative need, rather than cognitive needs because she wanted to get insightful information into her life, which helped her to figure out how to fix her car for not just saving money but empowering herself.

Another participant also asked two different questions in WikiAnswers in order to fix the household appliances herself. She also described her motivation as personal integrative needs in both cases because she wanted to get information in order to increase a level of confidence or self-credibility for doing something herself.

“My fridge is old and wanna make sure I am doing it right since I am doing it by myself.”

“I wanted to install a ceiling fan myself, but I want it to be safe and secure and

make sure it's done right...also have the confidence to know how to do it myself.”

#### **5.2.3.4. Social Integrative Needs**

The survey responses revealed that social integrative needs were a low to moderate frequent motivational factor for asking a question in online Q&A in the study. This suggests that people are less likely to rely on online Q&A sites to connect their networks (e.g., friends, family members, acquaintances, etc.) or develop a companionship within online Q&A environments. However, as described in a previous section, people still value the fact that they may be able to have social interactions or conversations to find information or share others’ personal opinions and experiences over seeking information through search engines (e.g., Bing, Google, Yahoo, etc.). As some participants vocalized, social elements of online Q&A satisfy their social integrative needs by being connected to other people or having conversations with other online Q&A users to seek and share information:

“Well, I spend a lot of time alone so I feel like I need to have music or Netflix or there needs to be some kind of interaction somehow like I don’t want to just be sitting alone in silence.”

“I’m seeking information but because you get more answers I’m more likely to figure out the answer myself by discussing it in a social environment.”

“Well basically I don’t really get out a lot. I’m kind of an isolated person and so as far as connection with others a lot of my connections are through social media and I wanted to not disconnect from that but in order to maintain my ability to not get overwhelmed by Pinterest and social media but still not have to isolate from that as a social outlet I wanted to be able to interact would be important- and kind of read through so I can connect with those who I intended to and not just give some stranger because it happened to be a common word or something.”

Even though the survey data analysis showed that there were no significant differences in social integrative needs between Yahoo! Answers and WikiAnswers, the



diary data collection in phase 2 indicates that people in Yahoo! Answers were more motivated in a social integrative state when asking a question. This may signify that unlike WikiAnswers, in which people collaboratively paraphrase an answer to a question, Yahoo! Answers' interface, that allows people to participate in an open discussion as a forum during the question-answering processes, may encourage people to participate in the question-answering interactions in the site in order to satisfy their social integrative needs.

#### **5.2.3.5. Tension Free Needs**

Tension free needs were found as the third most frequent motivational factor (N=20, 9.75%) as it was found from the survey data analysis that tension free needs were the second most significant motivational factor that influence people to participate in the question-answering interaction in both online Q&A sites (Mean=2.93, S.D.=1.02 in Yahoo! Answers; Mean=3.05, S.D.=1.02 in WikiAnswers). Having fun asking a question, one of sub-categories within tension free needs, was rated as one of most frequent motivational factors in the study (Mean=3.48, S.D=1.02 in Yahoo! Answers; Mean=3.40, S.D=1.22 in WikiAnswers). This indicates that the question-answering interactions may be perceived as more interesting as a dynamic information seeking process. This quality could be a critical factor that help satisfies users' tension free needs. The illustrative quotes from the participations for this needs are as follows:

“For me astrology and tarot reading is kind of relaxing something I do when I’m stressed out so when I asked this question I didn’t really feel any urgency to get an answer because I already know some astrology and tarot reading sites so it was kind of just to relax.”

“Usually I’ll go on Netflix or listen to music but sometimes I don’t feel like doing

either one of those so I'll just do [ask a question].”

“I was kind of bored and I decided to ask a question because I wanted to make an informed purchase later on but I asked the question and the answerer left the pros and cons between which one to pick.”

“[T]he motivation was just something for fun really just like a random question just to ask.”

### **5.3. RQ2: Expectation**

#### **5.3.1. Analysis of the Survey Data**

In the study, there was an assumption that people may be motivated to ask a question to satisfy their needs with a certain expectation from other users with respect to their answers to a question. In this sense, the study also attempted to investigate what people would expect from other online users when they are motivated to ask a question in the online Q&A environments. The six expectation-based factors were identified based on previous literature in the field of LIS (i.e., looking for quick responses, looking for additional or alternative information, looking for accurate or complete information, looking for social or emotional supports, looking for verification for own belief or knowledge, and looking for trustworthy sources). These expectation-based factors were measured on a 5-point Likert scale (1-Never to 5-Always) in the study.

It was found that looking for looking additional or alternative information was identified as the most significant expectation from others when asking a question (Yahoo! Answers, Mean=3.90, S.D.=0.94; WikiAnswers, Mean=3.97, S.D.=0.94), followed by looking for accurate or complete information (Yahoo! Answers, Mean=3.86, S.D=1.15; WikiAnswers, Mean=3.88, S.D.=1.20), looking for quick response (Yahoo! Answers,

Mean=3.74, S.D=1.15; WikiAnswers, Mean=3.88, S.D.=1.15), and looking for trustworthy sources (Yahoo! Answers, Mean=3.60, S.D=1.19; WikiAnswers, Mean=3.40, S.D.=1.29). It was found that looking for social or emotional support was the least significant expectation when a participant asked a question in Yahoo! Answers (Yahoo! Answers, Mean=2.56, S.D=1.23; WikiAnswers, Mean=2.77, S.D.=1.32). Table 5.23 presents details of distribution of all expectation-based factors in online Q&A services.

Table 5.23. Descriptive statistics of expectations.

Online Q&A services	Yahoo! Answers		WikiAnswers	
Expectations	Mean	S.D.	Mean	S.D.
Looking for quick response	3.74	1.15	3.88	1.15
Looking for additional or alternative information	3.90	0.94	3.97	0.94
Looking for accurate or complete information	3.86	1.15	3.88	1.20
Looking for social or emotional supports	2.56	1.33	2.77	1.32
Looking for verification for own belief or knowledge	3.29	1.23	3.34	1.27
Looking for trustworthiness	3.60	1.19	3.40	1.29

In Yahoo! Answers, it was found that people most likely expect to receive additional or alternative information that helps satisfy their need when using Yahoo! Answers to ask a question. Especially, the survey participants pointed out that Yahoo! Answers is the appropriate place where people may get additional thoughts on the issues that an asker encounters. Some participants vocalized their thoughts on looking for additional or alternative information when asking a question in Yahoo! Answers.

“I use yahoo answers because I can always get multiple answers to my question. I think yahoo answer and a search engine answers are different. Yahoo Answers is that anyone can answer if you know. Search engines provided a one person answer with a paragraph.”

“Yahoo Answers provides specific answers to specific questions in a more

concise and direct way than a Google search. However, they might not always be accurate. [S]ometimes, it is better to get several responses to choose from.”

Analysis of the survey data indicated that the participants also strongly look for accurate or complete information to their question in order to satisfy their needs in Yahoo

Answers.

“There are many reasons why I choose Yahoo answers over various search engines. Because I find it to be more accurate than other websites that I use and it is way more helpful than others. I usually get great answers back from yahoo answers and feel it’s very helpful for me. I would much rather have it help me than other sites.”

“Enjoy using Yahoo for pertinent information. Always satisfied with the responses (answers) received. Really like the completeness of the answers given.”

Nonetheless, other people also argued that information given to their question in Yahoo!

Answers may not be accurate although it helps get other people’s opinions.

“I use Yahoo Answers mainly for amusement or to kill time. I answer questions in order to help people out, and I ask questions in order to read the answers. I usually don't trust it as a good source of accurate information, but it is useful for gauging peoples’s opinions in some cases.”

Additionally, the WikiAnswers survey participants reported that they tend to look for additional or alternative information when asking a question although WikiAnswers since this online Q&A platform only allows for one answer per question. The answer is potentially paraphrased through collaborative editing by a number of WikiAnswers users. However, one participant indicated that WikiAnswers usually sends an email notification whenever people attempt to paraphrase the existing answer, therefore the asker may be able to be notified how different information could be added in order to collectively help address the askers’ question. In this case, the WikiAnswers survey participants pointed out:

“WikiAnswers is a space for questions with softer answers; they may not have a direct yes/no response, and I like that there’s room to elaborate and provide additional assistance.”

“I use WikiAnswers because I get more informal information than from other search engines!!! My expectations are that I gain more knowledge, and that I gain more opinions!!!”

“I used WikiAnswers to get a wider array of responses from individuals. My expectations are higher within WikiAnswers because of the quality of users.”

It was found that receiving responses to a question in a timely fashion in order to satisfy their needs is also one of the significant expectations when asking a question in Yahoo! Answers even though searching information through search engines (e.g., Bing, Google, Yahoo, etc.) may take less time to receive immediate results for their needs. However, the survey participants indicated that they might look for quick responses that are tailored to solve their specific situations.

“I use Yahoo Answers to get solutions to questions because it is quick. People usually respond in a matter of minutes. That is faster than doing extensive research. I don't expect to get expert advice from Yahoo Answers, but I feel I may bump into someone that has had a similar experience or who has knowledge of the answer firsthand.”

“I use yahoo answers to get information relevant to my situation quickly, typically some form of advice. If I use a search engine, I will find advice for people in similar situations, not my specific one.”

It was also found that looking for a quick response was another significant expectation when people ask a question in WikiAnswers. This indicates that WikiAnswers users tend to believe that a quick response would satisfy their needs when asking a question.

“Sometimes you just need a quick answer such as when you are doing a homework assignment and are confused about the problem/answer itself. WikiAnswers provide answers to homework (college level) questions. They also

answer questions that your child may want to know. It is quick.”

“I really enjoy doing research. I find that asking WikiAnswers questions does help with the situation faster. My expectations are that this is a quicker to find what I want than using a search engine (e.g., Google).”

“I wanted some direct human interaction rather than a staid and possibly outdated answer. Also, it might be quicker to get a direct answer rather than sifting through pages of Google sites.”

Finally, the survey participants reported that looking for accurate or complete information when asking a question was another prominent expectation from other online Q&A users with respect to their answers as the participants indicated:

“WikiAnswers is very accurate at providing results for questions. It is better than Google when it comes to specifics. So, I think WikiAnswers was a good option”

“With WikiAnswers, you do not have to search for the correct response, you’re instantly given the answer without any guesswork. I do however like to Google same question many times to compare answers. I am confident with WikiAnswers that the response I receive is accurate and I do not have to research it further whereas with Google, for instance, I would need to verify with several resources usually to make certain I do have my facts straight.”

However, although looking for accurate or complete information was identified as one of the significant expectations from others with respect to their answers to a question in WikiAnswers, some WikiAnswers participants also perceive that information received from other WikiAnswers users may not be accurate. In this case, they pointed out:

“Unfortunately, there is no way of knowing if the answer is accurate but it might put you on the right track to limit your search.”

“While WikiAnswers may not always be the most accurate, it’s usually sufficient for a quick insight/answer and, more often than not, one of the first search results on my cellphone. The site loads quickly and information is directly available.”

Finally, it was found that looking for trustful information to the question was

another significant expectation among the WikiAnswers survey participants. This would indicate that WikiAnswers could be used for interacting with someone who has expertise in a certain area in order to receive professional information:

“I have always known wiki to be helpful and reliable. I expect something more professional from WikiAnswers.”

“My experience with WikiAnswers has a bit more depth in getting the answers, or close, to what I am seeking. Wiki is different due to a genuine factor, unlike the wide range of jokes and sarcasm you find on alternative search engines.”

### **5.3.2. Analysis of the Diary Data**

Since there was an assumption that people would behave in a certain way with the expectation that something would happen to satisfy their needs in the study, the participants were required to choose one of the expectation-based factors and specify their expectation of other people each time they wrote a diary about their question.

It was found that in terms of expectations from other online Q&A users with respect to the questions that the participants asked during a 4-week diary data collection period, looking for accurate or complete information (N=77. 37.56%) was the most frequent expectation with respect to the question for asking a question in online Q&A. The participants described that they were hoping to receive more accurate or complete information to their question in order to satisfy their needs:

“I was looking for accurate information about that person because I want to verify what I have read the article.”

“I was expecting a very scientific and accurate answer that I may have not been able to completely comprehend.”

“I was expecting a straight forward answer and a correct answer.”

It was found that looking for quick responses was the second most frequent expectation-based factor. This indicates that people conceive that they may satisfy their needs once this type of expectation is met during the question-answering processes (N=57, 27.80%) as some participants vocalized:

“Mainly just want a 1-2 word response.”

“I know I will get the right answers fast!!”

“Not sure. Want a fast answer, but not a pat answer.”

Finally, the participants reported that looking for additional or alternative information (N=36, 17.56%) was the third most frequent expectation, suggesting that people also tend to ask a question in online Q&A in order to receive second thoughts from other users, or gain insights into their current events or activities through other people’s opinion. The examples of this expectation are:

“I would like to see if there's more to the subject matter than I already know for my assignment.”

“I’m trying to get people opinion on what video camera will work best that is priced under \$1000 dollars and the pro and cons of the cameras they mention...I was looking to check out different examples before selecting one.”

Verification for own beliefs or knowledge and looking for trustworthiness were found as the least frequent expectations that the participants looked for from other users when they asked a question in online Q&A.

### **5.3.3. Analysis of the Interview Data**

In this section, six different expectation-based factors identified from



the previous research studies in the field of LIS are presented in conjunction with the interview data consisting of 205 questions asked by 18 participants in phase 2.

Additionally, the newly discovered theme of expectation from other online Q&A askers is also presented here.

#### **5.3.3.1. Looking for Quick Responses**

The survey responses indicated that looking for quick responses was rated as one of significant expectations from others when people ask a question in online Q&A. It was also found that this expectation with respect to other online Q&A users' answer(s) was the second most frequent expectation for asking a question during the diary data collection (N=57, 27.80%). This indicates that receiving an answer to a question in a timely manner is a critical factor that satisfies an asker's needs in the online Q&A environments.

The interview data analysis indicates that there were a wide range of situations in which the participants tended to look for quick responses. The following quotes present the examples of different circumstances the participants were in when looking for quick responses.

“My girlfriend called me on the phone she asked me how to use one of those things and I never heard it in my life so that's why I used it to ask because I don't even know what that is.... She was cooking and she wanted an answer right away and I couldn't really give her an answer so I said let me look it up and I googled it and I couldn't really find it.”

“I used Launchcast for a long time maybe 4 or 5 years before it got cancelled and I listen to music all day and the player I used is ok and it's not like that and I was looking for something similar and everyone said to use Pandora but it's just not the same.... And, I would love to find one as soon as possible.”

“I want to be able to identify the name since the painting spoke powerfully to

me.... I first googled the painting but I couldn't find any information about it. So, I asked a question in WikiAnswers and was looking for a fast response since I wanna know now."

"A lot happened this year in terms of celebrity news and I wanted to know what peoples's opinions are and what impacted them the most.... It's good for advice but most of the time I ask random questions when I'm not bored but when I have time. I don't ask questions that I can find answers online, Yahoo answers isn't that useful for that.... Just want to see what people have to say quickly...."

### **5.3.3.2. Looking for Additional or Alternative Information**

As was identified by the survey responses, looking for additional or alternative information was the most frequent motivation for asking a question (Mean=3.90, S.D.=0.94 in Yahoo! Answers; Mean=3.97, S.D.=0.94 in WikiAnswers), suggesting that receiving a series of different information (e.g., opinion, recommendation, advice, etc.) is a significantly critical factor for people to employ in online Q&A when searching for information to satisfy their needs. From the diary data collection, it was found that 36 (17.56%) questions were asked by the participants who expected to receive additional or alternative information from other online Q&A users when asking a question. The following quotes from the interview data are examples of how the participants tend to ask a question in order to get other peoples' opinion, recommendation, advice, or second thought, in order to satisfy their needs in various interests.

"There are sites or apps that are just really generic they feel like something that anyone can- information that anyone can say that can apply to almost anyone in different circumstances so I was thinking if I asked this question maybe I could get answers from sites that are accurate because if people are recommending it. It's probably because they had good experiences with these sites."

"Well, it's the last semester of college for me and my friends and I were thinking of the things we should do and we couldn't come up with a long list and I guess we had the same mind and couldn't come up with anything outside of the box."

"Dave and Busters is a place where you can eat and play games kind of like

Chuckee cheese but only for adults we wanted to go out to dinner and play games and I wanted to see if anyone knew where to get coupons and deals because they're pretty expensive.”

“We had gone out, the foster fell through so we went out to the local humane society to adopt a shelter dog who spent her entire life in a box so she’s very scared and hard to handle so I was looking for ideas from people who've been in my situation to see how we can get her happier.”

“This question I asked because I’m a first time home buyer and I was looking around and before purchasing a home what are some low cost not too expensive remodeling to increase the value of a house, I didn’t know anything and I didn’t look on Google so I just asked this question.... [I was looking for] opinions and cognitive information that people have used and I asked this in the decorating and remodeling category I figured they had good information.”

“Basically I was going camping and we were getting ready and I asked this question because we have raw flaxseeds I remember back in school you can’t just eat raw flaxseeds so I asked this question just to be sure and someone did answer you can’t just eat it raw you have to cook it.... Yes, [I was looking for] advice and additional information that I can get on it.”

It was also found that people from WikiAnswers indicated that looking for additional or alternative information is their one of most frequent expectations. In WikiAnswers, only one answer could be given and potentially paraphrased by the collaborative efforts of different WikiAnswers contributors (e.g., regular users, content supervisors, etc.). This format is different than the Yahoo! Answers structure in which people are involved in a discussion-based answering forum and different answers may be displayed in thread for each question. Note that there is no guarantee that more than one answer is received. However, one participant from WikiAnswers commented that she always received an email notification whenever people add more content in the answer received to her question. This made her feel that she received additional information from different people to her question.

“Multiple people usually answer the question.... and I get multiple answers for

questions with multiple people who answer the same question or add to what other people say and I like that.”

This may explain why there were no statistical differences in looking for additional information or alternative information between Yahoo! Answers and WikiAnswers, although it was hypothesized that Yahoo! Answers and WikiAnswers function differently in terms of the number of answers that can potentially be given to a question (See section 2.1 for detailed characteristics of each online Q&A service).

### **5.3.3.3. Looking for Accurate or Complete Information**

The survey data analysis indicated that looking for accurate or complete information was the second most frequent expectation (Mean=3.86, S.D.=1.15 in Yahoo! Answers; Mean=3.88, S.D.=1.20 in WikiAnswers), followed by looking for additional or alternative information. However, it was found that looking for accurate or complete information was the most frequent expectation from other online Q&A users with respect to their answers to a question (N=77, 37.56%). This may be related to a question type the participants asked during the diary data collection. The incident diary data analysis revealed that 98 (27.80%) questions were to solicit factual or objective information for their question, suggesting that people tend to look for accurate or complete information to satisfy their cognitive needs, especially when asking fact-finding questions in the online Q&A environments.

The following quotes from the interview data present the examples of different circumstances (e.g., food, finance, health, etc.) in which people looked for accurate or complete information in order to satisfy their needs during the diary data collection.

“I wanted to post an ad without going to each specific site.... I was trying to look

for accurate information because I want to see a software..... from a verified source to help me with my business.”

“I'm hoping to get the right name for this plant so that I can start researching care instructions.”

“It's also cognitive needs too. I use electronic cigarettes I've been using them for a while and in some parts like New York and Chicago they've been regulating them but I wanted to know if they're ever going to ban them or if they're trying to.”

“I visited a church that was Pentecost and I was wondering if that was a belief that I agreed with and - I just thought the people were nice.... I was just looking up some factual information about this belief.”

“I have eyebags that have been under my eyes for a long time so I was just asking this question- I asked this in the medicine category there's actually doctors on there they have accurate information and factual for what causes this or that.”

“I was looking around for a home and I noticed there's some houses on the MLS they have something called owners finance is the certain type of financing and I wanted to know if there's anything to watch out for behind owners finance and some folks said there's nothing wrong with it I only got two answers for it and I asked it under real estate they said there's no real catch and they backed it up and said that if you are late on your payment that the county can legally kick you out of your house its really interesting.”

#### **5.3.3.4. Looking for Social or Emotional Supports**

Compared to other expectations, the survey data indicated that people were less likely look for emotional or social supports from other people when asking a question in the context of online Q&A (Mean=2.56, S.D.=1.33 in Yahoo! Answers; Mean=2.77, S.D.=1.32 in WikiAnswers). Only 20 questions (9.76%), were asked by the participants looking for social or emotional supports rather than factual information or others' opinion or advice. In addition, there was no significant evidence of differences in this expectation between Yahoo! Answers and WikiAnswers from both the survey and diary data analysis. However, the following example illustrates how and when people tend to look for social

and emotional supports for their problematic situations in Yahoo! Answers and WikiAnswers.

“We kind of got into a fight I don’t know I wanted to know other peoples opinion if they thought she overreacted. I wanted to meet some people I don’t know because they usually give unbiased information.... I guess I expect someone to give me insight on what went wrong.”

One participant from WikiAnswers commented that she already decided to foster a certain dog even though she found some information and negative perspectives on fostering a dog. When she asked a question about others’ experiences of fostering a dog, including some positive or negative experiences, she wanted to have some support from other WikiAnswers to confirm that she made the right decision.

“I filled out an application to foster dogs and we had to accept certain dogs if we want to take care of them and I wanted to know if - mostly if there were any negative experiences but positive experiences would make me happier about doing it.... I was hoping that their positive experiences - if there were any would back me up in order to be ready to foster a dog.”

#### **5.3.3.5. Looking for Verification for Own Belief or Knowledge**

Although it was confirmed from the survey data analysis that looking for verification for one’s own belief or knowledge was rated as a moderately frequent expectation from other people when asking a question (Mean=3.29, S.D.=1.23 in Yahoo! Answers; Mean=3.34, S.D.=1.27 in WikiAnswers), only a few questions (N=9, 4.39%) were asked when looking for verification for own belief or knowledge as an asker’s expectation.

One participant asked a question about a NBA player to see others’ opinions about the best NBA Players in their position. He also indicated that he wanted to verify

his belief.

“I was hoping I would get answers that were what I believed but the rest of the answers was another player..... I did get an answer but they named another player from another team. I still do believe that the player is inconsistent but I also do believe that the other player is inconsistent.”

Another participant from WikiAnswers looked for verification for her knowledge, and indicated that verifying what she believed through the question-answering processes with others is “social confirmation or assurance” that tends to validate own ideas through the information received from other people.

“I guess it was more of a confirmation that if it’s really tasting that bad that I’m going to ask kind of confirm that when I asked people were like- oh yea. It was kind of a social confirmation.... just kind of assurance.”

#### **5.3.3.6. Looking for Trustworthy Sources**

Similar to the findings of the previous expectation-based factor, looking for verification for own beliefs or knowledge, only 3 questions (1.46%) were asked by the participants although it was rated as moderate to high frequent expectation in the survey (Mean=3.60, S.D.=1.19 in Yahoo! Answers; Mean=3.40, S.D.=1.29 in WikiAnswers). Basically, this expectation indicates that people who look for trustful resources when asking a question more likely want to get “authoritative information” or interact with someone who has expertise in his/her question topic or area, rather than receive personal opinion or thought as one participants vocalized their expectation of having trustful resources:

“I’m thinking of Yahoo groups and some of these searches they’re just like basically cross referencing peoples’s blogs where they talk about I’ve tried this this and it’s just lists and that doesn’t tell me side effects or anything and it’s just a list and it comes up in buying your drugs online but I wanted a research site that compared different ones and brand names like prozac.com.”

## **5.4. RQ3: Relationship between Motivation and Expectation**

### **5.4.1. Analysis of the Survey Data**

As it was assumed that motivation and expectation would be correlated when people ask a question in the study, a series of linear regression analyses were conducted in order to investigate the relationships between users' motivations and expectations.

#### **5.4.1.1. Relationship between Motivation and Expectation in Yahoo! Answers**

First, looking for quick responses was statistically significant for finding relevant information in the following contexts: immediate surroundings, society and the world, seeking advice or opinions for making decisions, learning, self-education through acquiring information, gaining a sense of security through knowledge, social and emotional support for personal issues, social and emotional support for someone else, and emotional release. These results indicate that cognitive needs were strongly correlated with looking for quick responses, suggesting that people in Yahoo! Answers tend to look for quick responses to their question when they were motivated by cognitive needs to either receive factual information and/or seek others' advice or opinion tailored to an asker's specific situations.

Moreover, it was found that the participants were motivated to ask a question to satisfy their affective needs, especially for social and emotional supports. Yet, there was no statistically significant relationship with seeking quick responses. Similarly, it was also found that looking for quick responses was correlated with tension free needs. Especially, analysis of the survey data presents that releasing emotion, one of sub-



variables that was highly correlated with looking for quick responses, suggests that when the participants decide to ask a question in order to release their emotion, they tend to look for quick responses from other online Q&A users to satisfy their needs in Yahoo! Answers. However, it was also found that there were no statistically significant relationships between any personal and social integrative needs and looking for quick responses when asking a question in Yahoo! Answers. Table 5.24 illustrates a series of linear regression analyses of the relationships between motivations and looking for quick responses.

Table 5.24. Relationships between all motivational factors and looking for quick responses in Yahoo! Answers.

	B	Std. Error	Sig.
Cognitive needs	.533	.105	.000**
Finding relevant information in immediate surroundings, society and the world	.267	.086	.002*
Seeking advice or opinions for making decisions	.218	.075	.004*
Learning; self-education through acquiring information	.275	.081	.001*
Gaining a sense of security through knowledge	.301	.073	.000**
Affective needs	.211	.089	.020*
Social and emotional support for personal issues	.215	.072	.003*
Social and emotional support for someone	.198	.076	.010*
Attainment on personal thoughts or ideas	.028	.085	.739
Personal integrative needs	.030	.088	.732
Finding support for one's own values	.035	.077	.651
Gaining insight into one's own life	.060	.080	.452
Experiencing empathy with others' problems	-.027	.079	.733
Social integrative needs	.083	.093	.376
Identifying with others and gaining a sense of belonging	.109	.079	.167
Finding a basis for conversation and social interaction	.070	.080	.385
Having a substitute for real-life companionship	-.029	.084	.734
Feeling connected with other people	.088	.083	.290
Tension free needs	.221	.099	.027*

Having fun asking a question	.112	.082	.173
Filling time	.068	.080	.398
Emotional release	.215	.075	.005*

*Note* \*  $p < .05$ , \*\*  $p < .001$

The relationships with looking for additional or alternative information were statistically significant for finding relevant information in immediate surroundings, society and the world, seeking advice or opinions for making decisions, learning; self-education through acquiring information, gaining a sense of security through knowledge, having fun asking a question, and filling time. These results indicate that cognitive needs were highly correlated with the situations in which people tend to expect to receive additional or alternative information from others in Yahoo! Answers.

Moreover, it was found that tension free needs, especially having fun asking a question and filling time, were statistically correlated with looking for additional or alternative information. This suggests that the participants were more likely expecting to receive more diverse responses from others when they asked a question for having fun or filling their time in Yahoo! Answers. However, the relationships with looking for additional or alternative information were not statistically significant for affective needs, personal integrative needs, and social integrative needs in Yahoo! Answers. Table 5.25 presents a series of linear regression analyses of the relationships between motivations and looking for additional or alternative information.

Table 5.25. Relationships between all motivational factors and looking for additional or alternative information in Yahoo! Answers.

	B	Std. Error	Sig.
Cognitive needs	.444	.086	.000**
Finding relevant information in immediate surroundings, society and the world	.169	.072	.020*

Seeking advice or opinions for making decisions	.138	.063	.031*
Learning; self-education through acquiring information	.329	.063	.000**
Gaining a sense of security through knowledge	.244	.060	.000**
Affective needs	.110	.075	.142
Social and emotional support for personal issues	.048	.061	.437
Social and emotional support for someone else	.097	.064	.131
Attainment on personal thoughts or ideas	.102	.070	.144
Personal integrative needs	.097	.072	.183
Finding support for one's own values	.001	.064	.991
Gaining insight into one's own life	.127	.066	.055
Experiencing empathy with problems of others	.103	.064	.112
Social integrative needs	.028	.077	.721
Identifying with others and gaining a sense of belonging	.057	.065	.388
Finding a basis for conversation and social interaction	.037	.067	.584
Having a substitute for real-life companionship	-.066	.070	.344
Feeling connected with other people	.042	.069	.545
Tension free needs	.211	.081	.011*
Having fun asking a question	.192	.066	.004*
Filling time	.139	.065	.034*
Emotional release	.061	.064	.342

Note \*  $p < .05$ , \*\*  $p < .001$

In terms of the data regarding looking for accurate or complete information, which is presented in Table 5.26, it was found that only finding relevant information in immediate surroundings, society and the world, and gaining a sense of security through knowledge were statistically correlated with this type of expectation. Especially, finding relevant information in immediate surroundings, society, and the world, was strongly correlated with looking for accurate or complete information as it could be assumed that accurate information more likely satisfies an asker's need for receiving objective or factual information. Overall, this suggests that more objective criteria influencing expectations of information within SQA (e.g., accuracy) may be correlated with

motivational factors in a cognitive state.

Table 5.26. Relationships between all motivational factors and looking for accurate or complete information in Yahoo! Answers.

	B	Std. Error	Sig.
Cognitive needs	.356	.110	.002*
Finding relevant information in immediate surroundings, society and the world	.316	.084	.000**
Seeking advice or opinions for making decisions	.113	.077	.144
Learning; self-education through acquiring information	.142	.083	.090
Gaining a sense of security through knowledge	.155	.076	.044*
Affective needs	.033	.091	.720
Social and emotional support for personal issues	-.012	.074	.874
Social and emotional support for someone	.005	.078	.949
Attainment on personal thoughts or ideas	.086	.084	.310
Personal integrative needs	.115	.088	.191
Finding support for one's own values	.129	.076	.094
Gaining insight into one's own life	.099	.080	.219
Experiencing empathy with problems of others	.041	.078	.600
Social integrative needs	-.007	.093	.943
Identifying with others and gaining a sense of belonging	.043	.079	.592
Finding a basis for conversation and social interaction	-.024	.081	.770
Having a substitute for real-life companionship	-.012	.084	.886
Feeling connected with other people	-.040	.083	.634
Tension free needs	.081	.101	.422
Having fun asking a question	.073	.082	.378
Filling time	.017	.080	.834
Emotional release	.053	.077	.491

Note \*  $p < .05$ , \*\*  $p < .001$

The relationships with looking for social or emotional supports were statistically correlated with all motivational factors except learning; self-education through acquiring information, as shown in Table 5.27. It may be predictable that affective needs for seeking social and emotional support for personal issues or someone else's ones were strongly correlated with the expectations of having social or emotional supports from

others when asking a question in Yahoo! Answers. Yet, it was also found that social integrative needs and tension-free needs were also strongly correlated with looking for social and emotional supports. These findings indicate that when people are motivated to ask a question to having social conversations or interactions, they may expect to receive social or emotional supports from other Yahoo! Answers users through the question-answering processes. Additionally, the significant relationships between tension-free needs and looking for social and emotional supports may indicate that people who are strongly motivated to ask a question to release their tension or stress more likely look for social and emotional supports in order to satisfy their needs.

Table 5.27. Relationships between all motivational factors and looking for social or emotional supports in Yahoo! Answers.

	B	Std. Error	Sig.
Cognitive needs	.441	.124	.001*
Finding relevant information in immediate surroundings, society and the world	.196	.099	.050
Seeking advice or opinions for making decisions	.311	.084	.000**
Learning; self-education through acquiring information	.065	.095	.495
Gaining a sense of security through knowledge	.282	.084	.001*
Affective needs	.721	.081	.000**
Social and emotional support for personal issues	.592	.066	.000**
Social and emotional support for someone	.533	.075	.000**
Attainment on personal thoughts or ideas	.475	.086	.000**
Personal integrative needs	.590	.085	.000**
Finding support for one's own values	.521	.074	.000**
Gaining insight into one's own life	.447	.082	.000**
Experiencing empathy with problems of others	.434	.080	.000**
Social integrative needs	.698	.085	.000**
Identifying with others and gaining a sense of belonging	.565	.075	.000**
Finding a basis for conversation and social interaction	.592	.075	.000**
Having a substitute for real-life companionship	.436	.087	.000**
Feeling connected with other people	.546	.081	.000**

Tension free needs	.631	.100	.000**
Having fun asking a question	.219	.091	.018*
Filling time	.289	.087	.001*
Emotional release	.638	.066	.000**

Note \*  $p < .05$ , \*\*  $p < .001$

All motivational factors and their sub-level variables experience strong significant correlations with looking for own beliefs or knowledge. It was thought that the approaches people use in an attempt to verify their own belief or knowledge may be varied depending on each asker's unique situations involving their information seeking behaviors. They range from needs of more cognitive principles (e.g., fact finding, seeking advice or opinion, etc.) to needs of more subjective ones (e.g., seeking social and emotional support, having social connections, releasing emotion, etc.) in order to receive information sources for verifying their own belief or knowledge. Table 5.28 describes a series of linear regression analyses of the relationships between all motivational factors and looking for verification for own belief or knowledge.

Table 5.28. Relationships between all motivational factors and looking for verification for own belief or knowledge in Yahoo! Answers.

	B	Std. Error	Sig.
Cognitive needs	.647	.107	.000**
Finding relevant information in immediate surroundings, society and the world	.380	.087	.000**
Seeking advice or opinions for making decisions	.197	.080	.016*
Learning; self-education through acquiring information	.311	.084	.000**
Gaining a sense of security through knowledge	.415	.073	.000**
Affective needs	.398	.089	.000**
Social and emotional support for personal issues	.257	.075	.001*
Social and emotional support for someone	.262	.079	.001*
Attainment on personal thoughts or ideas	.387	.083	.000**
Personal integrative needs	.378	.087	.000**
Finding support for one's own values	.349	.075	.000**
Gaining insight into one's own life	.320	.080	.000**

Experiencing empathy with problems of others	.228	.080	.005*
Social integrative needs	.449	.090	.000**
Identifying with others and gaining a sense of belonging	.333	.078	.000**
Finding a basis for conversation and social interaction	.365	.079	.000**
Having a substitute for real-life companionship	.312	.085	.000**
Feeling connected with other people	.368	.081	.000**
Tension free needs	.453	.098	.000**
Having fun asking a question	.359	.081	.000**
Filling time	.223	.082	.007*
Emotional release	.262	.078	.001*

*Note* \*  $p < .05$ , \*\*  $p < .001$

Finally, the relationships with looking for trustworthy sources were statistically correlated with finding relevant information in immediate surroundings, society and the world, seeking advice or opinions for making decisions, learning; self-education through acquiring information, gaining a sense of security through knowledge, attainment on personal thoughts or ideas, gaining insight into one's own life, and experiencing empathy with problems of others.

Analysis of the survey data indicates that all motivational variables in cognitive needs were highly correlated with looking for trustworthy sources, signifying that credibility of an information source may be a critical factor satisfying an asker's need when seeking either factual information and/or others personal opinions or advices.

Yet, it was found that social integrative needs and tension free needs were not statistically correlated with looking for trustworthy information when asking a question in Yahoo! Answers. Table 5.29 illustrates a series of linear regression analyses of the relationships between motivations and looking for trustworthiness.

Table 5.29. Relationships between all motivational factors and looking for trustworthy sources in Yahoo! Answers.

	B	Std. Error	Sig.
Cognitive needs	.547	.108	.000**
Finding relevant information in immediate surroundings, society and the world	.288	.088	.001*
Seeking advice or opinions for making decisions	.261	.077	.001*
Learning; self-education through acquiring information	.257	.084	.003*
Gaining a sense of security through knowledge	.282	.076	.000**
Affective needs	.181	.093	.053
Social and emotional support for personal issues	.124	.076	.106
Social and emotional support for someone	.086	.080	.288
Attainment on personal thoughts or ideas	.202	.086	.020*
Personal integrative needs	.213	.089	.018*
Finding support for one's own values	.146	.079	.065
Gaining insight into one's own life	.199	.081	.015*
Experiencing empathy with problems of others	.160	.080	.047*
Social integrative needs	.115	.096	.231
Identifying with others and gaining a sense of belonging	.098	.081	.231
Finding a basis for conversation and social interaction	.108	.083	.196
Having a substitute for real-life companionship	-.002	.087	.981
Feeling connected with other people	.139	.085	.104
Tension free needs	.083	.104	.424
Having fun asking a question	.099	.085	.245
Filling time	-.005	.082	.949
Emotional release	.055	.079	.491

Note \*  $p < .05$ , \*\*  $p < .001$

#### 5.4.1.2. Relationship between Motivation and Expectation in WikiAnswers

A series of linear regression analyses were conducted in order to investigate the relationships between users' motivations and expectations when people ask a question in WikiAnswers.

First, it was found that looking for quick responses was statistically related to



finding relevant information in immediate surroundings, society and the world, learning, self-education through acquiring information, gaining a sense of security through knowledge as cognitive needs, social and emotional support for personal issues as affective needs, finding support for one's own values, gaining insight into one's own life as personal integrative needs, identifying with others and gaining a sense of belonging, finding a basis for conversation and social interaction as social integrative needs, and having fun to ask a question as tension free needs. These results indicate that when people are motivated to ask a question for satisfying their cognitive needs, they are more likely to look for a quick response except in situations when they may seek advice or opinions for making decisions.

Table 5.30. Relationships between all motivational factors and looking for quick responses in WikiAnswers.

	B	Std. Error	Sig.
Cognitive needs	.364	.119	.003*
Finding relevant information in immediate surroundings, society and the world	.270	.101	.009*
Seeking advice or opinions for making decisions	.061	.091	.503
Learning; self-education through acquiring information	.279	.093	.004*
Gaining a sense of security through knowledge	.324	.094	.001*
Affective needs	.229	.099	.022*
Social and emotional support for personal issues	.253	.083	.003*
Social and emotional support for someone	.110	.086	.204
Attainment on personal thoughts or ideas	.179	.096	.064
Personal integrative needs	.370	.096	.000*
Finding support for one's own values	.348	.084	.000*
Gaining insight into one's own life	.335	.083	.000*
Experiencing empathy with others' problems	.177	.090	.052
Social integrative needs	.273	.095	.005
Identifying with others and gaining a sense of belonging	.266	.086	.003*

Finding a basis for conversation and social interaction	.242	.087	.006*
Having a substitute for real-life companionship	.200	.083	.017*
Feeling connected with other people	.170	.087	.053
Tension free needs	.268	.110	.017*
Having fun asking a question	.228	.092	.015*
Filling time	.142	.098	.148
Emotional release	.162	.084	.057

Note \*  $p < .05$ , \*\*  $p < .001$

Additionally, there was a statistically significant relationship between looking for a quick response and social and emotional support for personal issues. This may signify that the timeliness of receiving answer(s) would be a critical factor to satisfy affective needs when they ask a question in WikiAnswers. Table 5.30 presents a series of linear regression analyses of the relationships between motivations and looking for quick responses.

Table 5.31. Relationships between all motivational factors and looking for additional or alternative information in WikiAnswers.

	B	Std. Error	Sig.
Cognitive needs	.393	.094	.000**
Finding relevant information in immediate surroundings, society and the world	.287	.081	.001*
Seeking advice or opinions for making decisions	.201	.072	.006*
Learning; self-education through acquiring information	.259	.075	.001*
Gaining a sense of security through knowledge	.235	.078	.003*
Affective needs	.255	.079	.002*
Social and emotional support for personal issues	.186	.069	.008*
Social and emotional support for someone	.172	.068	.014*
Attainment on personal thoughts or ideas	.256	.075	.001*
Personal integrative needs	.308	.078	.000**
Finding support for one's own values	.253	.070	.000**
Gaining insight into one's own life	.305	.067	.000**
Experiencing empathy with problems of others	.158	.073	.033*
Social integrative needs	.267	.076	.001**
Identifying with others and gaining a sense of belonging	.228	.070	.002*

Finding a basis for conversation and social interaction	.244	.069	.001*
Having a substitute for real-life companionship	.148	.068	.032*
Feeling connected with other people	.239	.068	.001**
Tension free needs	.309	.087	.001*
Having fun asking a question	.238	.074	.002*
Filling time	.208	.078	.009*
Emotional release	.175	.068	.011*

*Note* \*  $p < .05$ , \*\*  $p < .001$

Second, all motivational factors, including all sub-categories were statistically correlated to looking for additional or alternative information. This suggests that people generally look for additional or alternative information to satisfy any type of motivation that drives people to ask a question in WikiAnswers. Table 5.31 presents a series of linear regression analyses of the relationships between motivations and looking for additional or alternative information.

Third, looking for accurate or complete information was statistically correlated with finding relevant information in immediate surroundings, society and the world, seeking advice or opinions for making decisions, learning; self-education through acquiring information, gaining a sense of security through knowledge as cognitive needs, social and emotional support for personal issues, attainment on personal thoughts or ideas as affective needs, finding support for one's own values, gaining insight into one's own life as personal integrative needs, identifying with others and gaining a sense of belonging, finding a basis for conversation and social interaction, having a substitute for real-life companionship as social integrative needs, and having fun asking a question as tension free needs.

It was found that people tend to look for accurate or complete information when

they are more likely motivated to ask a question for satisfying their affective needs. This may signify that people may still look for professional advice or experiences in order to socially or emotionally support their problematic situations, e.g., looking for professional advice for their current health-related issues. It was found that there was not a significant relationship between looking for accurate or complete information and social and emotional support for someone else's issues. In addition, it was evaluated by looking for accurate or complete information was strongly correlated with social integrative needs, especially by finding a basis for conversation and social interaction. This indicates that social interactions with other people to consult an asker's needs in order to receive more factual information are expected in WikiAnswers. Table 5.32 presents a series of linear regression analyses of the relationships between motivations and looking for quick accurate or complete information.

Table 5.32. Relationships between all motivational factors and looking for accurate or complete information in WikiAnswers.

	B	Std. Error	Sig.
Cognitive needs	.513	.119	.000**
Finding relevant information in immediate surroundings, society and the world	.411	.102	.000*
Seeking advice or opinions for making decisions	.224	.093	.018*
Learning; self-education through acquiring information	.372	.095	.000**
Gaining a sense of security through knowledge	.286	.100	.005*
Affective needs	.221	.103	.035*
Social and emotional support for personal issues	.179	.089	.047*
Social and emotional support for someone	.093	.090	.304
Attainment on personal thoughts or ideas	.271	.098	.007*
Personal integrative needs	.372	.101	.000**
Finding support for one's own values	.323	.089	.000**
Gaining insight into one's own life	.389	.085	.000**
Experiencing empathy with problems of others	.152	.095	.112
Social integrative needs	.317	.098	.002*

Identifying with others and gaining a sense of belonging	.272	.090	.003*
Finding a basis for conversation and social interaction	.321	.088	.000**
Having a substitute for real-life companionship	.216	.086	.014*
Feeling connected with other people	.211	.090	.021*
Tension free needs	.203	.117	.086
Having fun asking a question	.208	.097	.034*
Filling time	.164	.102	.110
Emotional release	.052	.089	.562

Note \*  $p < .05$ , \*\*  $p < .001$

Fourth, it was found that looking for social or emotional supports had statistically significant relationships with all motivational factors, including all sub-variables, except finding relevant information in immediate surroundings, society and the world within cognitive needs. It was found that the WikiAnswers participants tend to look for social or emotional supports when they are motivated to ask a question to satisfy their affective needs such as finding social and emotional support for either personal issues and/or someone else's ones. At the same time, they also look for social or emotional supports when their needs are more likely from cognitive states, e.g., seeking advice or opinions for making decisions.

Table 5.33. Relationships between all motivational factors and looking for social or emotional supports in WikiAnswers.

	B	Std. Error	Sig.
Cognitive needs	.434	.136	.002*
Finding relevant information in immediate surroundings, society and the world	.163	.119	.176
Seeking advice or opinions for making decisions	.239	.102	.021*
Learning; self-education through acquiring information	.224	.109	.043*
Gaining a sense of security through knowledge	.443	.105	.000**
Affective needs	.686	.093	.000**
Social and emotional support for personal issues	.639	.076	.000**
Social and emotional support for someone	.517	.084	.000**

Attainment on personal thoughts or ideas	.448	.102	.000**
Personal integrative needs	.821	.084	.000**
Finding support for one's own values	.622	.083	.000**
Gaining insight into one's own life	.656	.079	.000**
Experiencing empathy with problems of others	.639	.083	.000**
Social integrative needs	.843	.075	.000**
Identifying with others and gaining a sense of belonging	.673	.078	.000**
Finding a basis for conversation and social interaction	.721	.073	.000**
Having a substitute for real-life companionship	.637	.073	.000**
Feeling connected with other people	.669	.076	.000**
Tension free needs	.715	.108	.000**
Having fun asking a question	.319	.104	.003*
Filling time	.394	.106	.000**
Emotional release	.662	.072	.000**

Note \*  $p < .05$ , \*\*  $p < .001$

Additionally, the WikiAnswers participants tend to seek social or emotional supports when asking a question to either satisfy an asker's personal integrative needs to improve their credibility or develop their self-esteem and/or social integrative needs that drive him/her to socially connect with other people or find a basis for conversation through the question-answering processes. Table 5.33 describes a series of linear regression analyses of the relationships between all motivational factors and looking for social or emotional supports.

Fifth, the relationships between all motivational factors and looking for verification for one's own belief or knowledge were evaluated as presented in Table 5.34. It was found that most motivational factors except finding relevant information in immediate surroundings, society and the world, seeking advice or opinions for making decisions, and learning; self-education through acquiring information were strongly correlated with looking for verification for own belief or knowledge. This may signify

that when the WikiAnswers participants are motivated to ask a question in order to satisfy their cognitive needs, their expectations from other WikiAnswers users with respect to their question are less likely to verify their own belief or knowledge. However, gaining a sense of security through knowledge, one of sub-categories within cognitive needs, was significantly correlated with this type of expectation when asking a question in WikiAnswers.

Table 5.34. Relationships between all motivational factors and looking for verification for own belief or knowledge in WikiAnswers.

	B	Std. Error	Sig.
Cognitive needs	.266	.135	.053
Finding relevant information in immediate surroundings, society and the world	.069	.116	.556
Seeking advice or opinions for making decisions	.096	.101	.341
Learning; self-education through acquiring information	.179	.107	.095
Gaining a sense of security through knowledge	.314	.106	.004*
Affective needs	.610	.094	.000**
Social and emotional support for personal issues	.567	.078	.000**
Social and emotional support for someone	.409	.086	.000**
Attainment on personal thoughts or ideas	.463	.097	.000**
Personal integrative needs	.741	.086	.000**
Finding support for one's own values	.588	.081	.000**
Gaining insight into one's own life	.634	.076	.000**
Experiencing empathy with problems of others	.506	.088	.000**
Social integrative needs	.672	.086	.000**
Identifying with others and gaining a sense of belonging	.535	.084	.000**
Finding a basis for conversation and social interaction	.642	.076	.000**
Having a substitute for real-life companionship	.448	.083	.000**
Feeling connected with other people	.535	.082	.000**
Tension free needs	.615	.110	.000**
Having fun asking a question	.415	.096	.000**
Filling time	.373	.103	.000**
Emotional release	.429	.084	.000**

Note \* $p < .05$ , \*\*  $p < .001$

Finally, it was found that no matter how the WikiAnswers participants are motivated to ask a question, they tend to look for trustful information to their question, except the situations in which they ask a question to seek advice or opinions for making decisions.

“I thought that asking WikiAnswers would give me quick, and reliable response. I really needed and outside perspective. WikiAnswers came through and provided enough data to satisfy my quest.”

“I have always known wiki to be helpful and reliable. I expect something more professional from WikiAnswers.”

However, it was also found that seeking advice or opinions for making decisions had no a statistically significant relationship with looking for trustworthiness, suggesting that when people use WikiAnswers to find other peoples’ opinion or advice, it would not matter whether or not information received to his/her question is trustful since people perceive that such advice- or opinion-based responses might not be a right or wrong information. Table 5.35 presents a series of linear regression analyses of the relationships between all motivational factors and looking for trustworthy sources.

Table 5.35. Relationships between all motivational factors and looking for trustworthy sources in WikiAnswers.

	B	Std. Error	Sig.
Cognitive needs	.378	.134	.006*
Finding relevant information in immediate surroundings, society and the world	.282	.114	.015*
Seeking advice or opinions for making decisions	.138	.101	.178
Learning; self-education through acquiring information	.261	.106	.016*
Gaining a sense of security through know ledge	.275	.108	.013*
Affective needs	.521	.101	.000**
Social and emotional support for personal issues	.446	.087	.000**



Social and emotional support for someone	.301	.092	.001*
Attainment on personal thoughts or ideas	.504	.096	.000**
Personal integrative needs	.653	.095	.000**
Finding support for one's own values	.504	.088	.000**
Gaining insight into one's own life	.570	.083	.000**
Experiencing empathy with problems of others	.449	.092	.000**
Social integrative needs	.559	.095	.000**
Identifying with others and gaining a sense of belonging	.433	.091	.000**
Finding a basis for conversation and social interaction	.530	.085	.000**
Having a substitute for real-life companionship	.402	.086	.000**
Feeling connected with other people	.427	.089	.000**
Tension free needs	.470	.118	.000**
Having fun asking a question	.385	.099	.000**
Filling time	.280	.107	.010*
Emotional release	.276	.092	.003*

Note \*  $p < .05$ , \*\*  $p < .001$

#### 5.4.2. Analysis of the Diary Data

Another descriptive analysis was conducted to examine the relationships between motivations and expectations for asking a question in online Q&A. It was found that cognitive need and looking for accurate or complete information were the most frequently correlated attributes when asking a question during the diary data collection ( $N=61$ , 45.86%), followed by cognitive needs and looking for quick responses ( $N=36$ , 27.07%) and cognitive needs and looking for additional or alternative needs ( $N=23$ , 17.29%). Additionally, it was also found that such cognitive-related expectations (i.e., looking for quick responses, looking for additional or alternative information, and looking for accurate or complete information) were correlated with other motivational factors. For example, the participants also looked for either additional information or accurate information to satisfy their affective needs more than social or emotional

supports, even though it was predictably assumed that affective needs might be highly correlated with looking for social or emotional supports. These findings may signify that the relationships between user motivations and expectations may be dynamically changed based on an asker's unique situation when they ask a question in online Q&A services.

It was found that when people were motivated to ask a question to satisfy their tension free needs (e.g., passing time, releasing emotion, etc.), they more likely look for quick responses (N=8, 40%) than any other expectations. This indicates that timeliness in receiving answer(s) would be a critical factor of how their tension free needs are fulfilled through the question-answering processes.

Yet, it was found from the diary data analysis that there were no significant differences in the relationships between motivations and expectations between Yahoo! Answers and WikiAnswers. Table 5.36 presents a summary of relationships between motivations and expectations in all incidents generated by the participants in the diary data collection.

Table 5.36. Relationships between motivation and expectation in all incidents (N=205).

Motivation	Expectation	N
Cognitive needs	Looking for quick responses	36 (27.07%)
	Looking for additional or alternative information	23 (17.29%)
	Looking for accurate or complete information	61 (45.86%)
	Looking for social or emotional supports	8 (6.02%)
	Looking for verification for own belief or knowledge	2 (1.50%)
	Looking for Trustworthiness	2 (1.50%)
	Did not answer	1 (0.75%)
	Total	133 (100%)

Affective needs	Looking for quick responses	2 (11.76%)
	Looking for additional or alternative information	5 (29.41%)
	Looking for accurate or complete information	4 (23.53%)
	Looking for social or emotional supports	3 (17.65%)
	Looking for verification for own belief or knowledge	2 (11.76%)
	Looking for Trustworthiness	1 (5.88%)
	Total	17 (100%)
Personal integrative needs	Looking for quick responses	7 (33.33%)
	Looking for additional or alternative information	3 (14.28%)
	Looking for accurate or complete information	7 (33.33%)
	Looking for social or emotional supports	2 (9.52%)
	Looking for verification for own belief or knowledge	1 (4.76%)
	Looking for Trustworthiness	0 (0%)
	Did not answer	1 (4.76%)
Social integrative needs	Total	21 (100%)
	Looking for quick responses	4 (28.57%)
	Looking for additional or alternative information	1 (7.14%)
	Looking for accurate or complete information	3 (21.43%)
	Looking for social or emotional supports	0 (0%)
	Looking for verification for own belief or knowledge	3 (14.28%)
	Looking for Trustworthiness	0 (0%)
Tension free needs	Total	14 (100%)
	Looking for quick responses	8 (40%)
	Looking for additional or alternative information	4 (20%)
	Looking for accurate or complete information	2 (10%)
	Looking for social or emotional supports	4 (20%)
	Looking for verification for own belief or knowledge	1 (5%)
	Looking for Trustworthiness	0 (0%)

Did not answer	1 (5%)
Total	20 (100%)

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### 5.4.3. Analysis of the Interview Data

In the study, it was assumed that user motivations and expectations could be correlated when people decide to ask their own question in online Q&A. In other words, people may be motivated to ask a question to satisfy their needs in a unique situation where they feel that asking a question in online Q&A is mostly appropriate with a certain expectation from other online Q&A users with respect to their responses to the question.

From both survey and diary data analysis, it has been observed that dynamic relationships between motivations and expectations were developed when asked a question among the participants as opposed to linear relationships between certain motivational and expectation-based factors. This suggests that the relationships between these two factors are based on an asker's unique situation in which contextual information is inquired for satisfying an asker's needs in online Q&A.

The following sections present different types of information seeking grounded by multiple cases of relationships between motivations and expectations when asking a question for seeking contextual information in online Q&A. Different cases illustrating a variety of relationships between different needs and expectations are presented for describing each type of information seeking behaviors.

#### 5.3.3.1. Fast Information for Needs

One of the predominant information seeking behaviors identified in the study is to get fast information for an asker's needs in online Q&A. Their needs may vary

depending on an asker's unique situation. It ranges from looking for factual information or others' opinion or advice, to getting insights on personal thought, to developing social conversation for an open discussion, and to just having fun to pass time by the question-answering interactions.

*Cognitive Needs.* Getting fast information to satisfy an asker's need in a cognitive state was found as the most significantly frequent information seeking behavior (N=36, 63.15%), and there was no significant evidence that this relationship might be different between Yahoo! Answers and WikiAnswers as the survey data analysis also presents that the relationship between cognitive needs and looking for quick responses were statistically significant in both Yahoo! Answers and WikiAnswers.

It was found from the diary data that most questions within the relationship between cognitive needs and getting fast information were to solicit factual information in a wide range of topics. For example, one participant from WikiAnswers asked about libertarians.

“My main motivation really was to learn more about libertarians and to see if there's any facts to that not just opinions but the political party they come from what they're about.”

However, she indicated that since there was too much information about what it is online, she wanted to ask a question in WikiAnswers to get quick and concise information about it as she vocalized her expectation from other WikiAnswers users:

“I am asking this question because there seems to be so much information out there internet wise regarding libertarians, that I wanted a more simple explanation.”

*Personal Integrative Needs.* It was found that people looked for quick responses

to satisfy their personal integrative needs when attempting to find supports for their own values or gain insights into their belief and life. As confirmed in the survey data, there were more frequent correlations between personal integrative needs and looking for quick responses in WikiAnswers. For instance, one participant from WikiAnswers had an offline conversation with her brother, talking about the Olympics, then had an argument about when it actually started and two had a different answer for it.

“I was watching the Olympics and I’ve always been into the sports and I was trying to figure out when it actually started because me and my brother had an argument about it so it was more like sibling rivalry about who has the correct answer but it was interesting to find out the answer.”

*Social Integrative Needs.* Unlike statistical analyses, which showed that there was no significant evidence that social integrative needs were related to looking for quick responses in Yahoo! Answers, there were more incidents where social integrative needs and looking for quick responses were related when asked a question in Yahoo! Answers (N=4), while there was no incident that the participants were motivated to ask a question in a social integrative needs and looked for quick responses.

It seems that people tend to ask a question to either solicit factual information and/or find other online Q&A users’ advice when looked for quick responses to satisfy their social integrative needs, which they tended to create an open-ended discussion by their question to generate social interactions or conversations. For example, one participant from Yahoo! Answers asked about the current weather in his area.

“Subject arose with recent very cold temps here in Pittsburgh PA, and I was finding information, but wanted to share ideas with other people because I’m sure there is more one answer for my question, and I want to meet others who have different answer for it...”

He expressed that his initial motivation was to ask a question to seek correct information about his topic, but he was also interested in interactions with other Yahoo! Answers users who have different opinions or thoughts about the topic he asked. In addition, he indicated that offline discussions with his family members or friends sometimes encourage him to visit Yahoo! Answers in order to interact with other people that he does not know and have another discussion through the question-answering process for the similar topics the he discussed with his family members or friends.

*Tension Free Needs.* A total eight of incidents illustrated the relationship between tension free needs and looking for quick responses. Especially, the participants asked more questions in Yahoo! Answers to satisfy their tension free needs through receiving fast responses from others (N=6). The participants described that they sometimes use online Q&A to ask a question because they feel bored. Thus, they indicated that having fast responses from other online Q&A users helps them to have fun asking a question and fill their time. In this sense, one participant, for instance, wanted to create an open discussion of games with other Yahoo! Answers users.

“I was kind of bored and I decided to ask a question because I wanted to make an informed purchase later on but I asked the question and the answerer left the pros and cons between which one to pick.... In Yahoo Answers, there’s something called polls and surveys and that category has a bunch of people on it asking questions and so that one was I was just wondering why people were choosing one over the other..... [I was] looking for a fast response from people to see how others think....”

It was also found that selecting a specific category to ask a question in online Q&A may affect how user motivation and expectation is correlated with one another. He indicated that he uses different categories based on what he wants from other online Q&A users.

“I get more technical information from the video game forum, but on the polls

and surveys forum they might not even know which is which but they choose one anyway its more personal I guess it's not like technical I guess....”

### 5.3.3.2. Additional Information for Needs

Another significant type of information seeking in online Q&A is ‘seeking additional information for needs’ (N=36, 17.56%), which indicates that an asker wants to receive multiple responses to a question. Thus, it was found that the questions that people look for other online Q&A users’ opinions and advices may be most likely related to this type of information seeking. Additionally, an asker’s need is based on a unique situation in which he or she asks a question to find contextual information. The following sections present the relationship with looking for additional or alternative information with each significant need found from the diary data analysis.

*Cognitive Needs.* It was found that seeking additional information to satisfy an asker’s need in a cognitive state was the most frequent (N=23, 63.88%), and there was evidence showing that the relationship between looking for additional information and cognitive needs for asking a question was statistically significant in both Yahoo! Answers and WikiAnswers. For example, one participant from Yahoo! Answers asked a question about a CAPM certification exam. She indicated that she tried to study it a couple of times previously, but could not figure out which way is the most appropriate.

“[I] would like to see how others studied for CAPM so that I can consider their method as one of options to study for the exam.... I was expecting to receive multiple alternatives on different prep courses what not, so that I can seek and choose what suits the best for me....”

She pointed out that since there are a variety of ways for people to study and prepare for a CAPM certification exam, she wanted to receive additional information about them from



other Yahoo! Answers users who have already done it.

Another participant also wanted to receive multiple suggestions from other Yahoo! Answers users when she asked a question about some good party games for college-aged people.

“I would like to get other people’s suggestions for activities.... I would like to get many suggestions that I haven't thought of myself.”

*Affective Needs.* There were incidents that represented the relationship between affective needs and looking for additional or additional information (N=5), suggesting that people sometimes want to get multiple information perspectives about his/her topic in order to have social or emotional supports from others through the question-answering interactions in online Q&A. One participant from Yahoo! Answers explained, for example, that he wanted to find someone else who could provide some emotional supports for his situation.

“I ended up surprising my female coworker after not seeing her for 2 months so I ended up going from behind and giving her a hug and we held that position for 2 months and just want peoples opinion on what type of hug is this.... I just want people opinion who has missed a person and hugged a person for over 10 seconds and ask them what type of hug this is because I know that there are several hugs.”

This incident exemplifies one of the situations in which an asker’s primary motivation for asking a question is less likely related to seeking and sharing information or knowledge. He primarily wanted to have emotional supports from others who have similar experiences in order to understand the situation.

*Personal Integrative Needs.* It was also found that people tend to satisfy their personal integrative needs by having diverse information in online Q&A. A total of 3 incidents (8.33%) were made by the participants in which they looked for additional or

alternative information for satisfying their personal integrative needs. One of participants asked a question about an existence of female ginger cats. She commented that her main motivation was personal integrative needs since she wanted to gain more insights into her current knowledge through various information related to her question topic.

“I just found out my stray ginger cat is a female, when I thought all along that it was a male.... since I didn't know this I wanted to gather as much information as I could, genetics.....”

*Tension Free Needs.* A total of 4 incidents occurred during the diary data collection where the participants' tension free needs were related to looking for additional or alternative information when asked a question in online Q&A. The questions asked within this case were mostly related to seeking others' opinions, which indicates that people tend to look for other users' opinions or thoughts when they either feel bored to fill their time or want to release their emotion through asking a question in online Q&A. For example, a Yahoo! Answers participant asked about a favorite astrology or tarot reading site in order to not only look for others' suggestions but also release her emotion and feel relaxation.

“For me astrology and tarot reading is kind of relaxing something I do when I'm stressed out so when I asked this question I didn't really feel any urgency to get an answer because I already know some astrology and tarot reading sites so it was kind of just to relax....”

### **5.3.3.3. Accurate Information for Needs**

It was found that seeking accurate information for satisfying an asker's needs is the most frequent form of information seeking when people ask a question in online

Q&A (N=76, 37.07%). Seeking ‘accurate information for needs’ is a type of information seeking in online Q&A asserts that online Q&A users may perceive that receiving accurate or complete information from other online Q&A users would help them to satisfy any need that they have in their state. In addition, it was found that there were evidences of which the following four needs are often related to looking for accurate information.

*Cognitive Needs.* Looking for accurate or complete information and cognitive need was the most significantly frequent relationship, which was identified from the diary data analysis (N=61, 80.26%). This may signify that people look for accurate information when they are motivated to ask a question to satisfy their needs in a cognitive state, more specifically through finding factual information or seeking professional advice for an asker’s problematic situation. For example, one participant wanted to know what Obama Care means. She indicated that she has been taught about what it is, but did not fully explain it to other people. Thus, she decided to ask a question to get more complete information about it.

“I wanted an answer that could provide me an in depth look into Obama Care, but still be something that is easy to understand. I want to know more about Obama Care because everyone I ask about it seems to really have no idea on what it is about. The internet on the other hand has too much information on it, and I can barely comprehend some of it.”

Another participant from WikiAnswers asked a technical question related to how to hook up a portable receiver to her television, and commented that she thought it would be not a difficult task, which she would not need to hire a technician to do it. Thus, she decided to do herself, but needed more detailed information.

“I wanted to be able to get information from someone who knows what to do....

self-help knowledge via experiences of others....and quick response or information.... I prefer the information to be detailed and not just a quick response without nothing specific."

*Affective Needs.* A total of 4 incidents occurred during the diary data collection, which present how affective needs were related to looking for accurate information. It was found that people who are motivated to ask a question to satisfy their affective needs do not always expect to receive others' social or emotional supports in online Q&A. Rather, this finding indicates that people also look for accurate or complete information to satisfy their affective needs that drive them to ask a question for finding social or emotional supports for either own and/or someone else's problems.

One participant from WikiAnswers asked a question about what products have vitamin c to see if she should change her meal plans to get more vitamin c, She hoped that someone would provide good information, which would confirm that she would not change her meal plans.

"I was trying to learn what has vitamin c.... I knew some things had it, but I needed others like more variety like fruit and vegetables and other stuff.... it was interesting to find out how many different stuff there is.... It was more like I wanted to know what it was like I needed to know and I wanted to know so it was a balance in between both, so it's kind of hard to explain."

*Personal Integrative Needs.* There were 7 incidents collected from the diary data that represent how personal integrative needs were related to looking for accurate or complete information (9.21%). This indicates that sometimes, people want to receive more accurate or complete information than quick or additional information, in order to satisfy their need in a personal integrative state, which there are attempts for people to gain more insights on their own values through the question-answering processes in

online Q&A. For example, one Yahoo! Answers participant asked a question about how to record restaurant meals on Sparkpeople in order to get specific advice from other users who use the same service. But her main motivation in asking the question was to gain insightful ideas into the right way of doing a certain thing by others' comments on their experiences.

“I've been dieting the past two months and I haven't been eating any restaurant meals but I've been recording everything I eat into sparkpeople so I was wondering how I record a restaurant meal if the nutrition facts weren't on the website.... I wanted someone who's done it before but I didn't someone to guess I wanted someone who's actually done it before to give me an answer.”

#### **5.3.3.4. Supports for Situations**

‘Support for situations’ indicates that an asker looked for social or emotional supports from others who provided favorable supports for an asker's problematic situations. Even though an asker may have different motivations to ask a question, e.g., finding objective information, having different perspectives drawn by other's opinions or advices, gaining insights for his/her own life, or having social conversations, the primary expectation for supports for situations may look for others' social or emotional supports through the question-answering processes.

A total of 20 incidents were identified as this type of information seeking in Yahoo! Answers and WikiAnswers, and it was found that different motivational factors (e.g., cognitive needs, affective needs, social integrative needs, and tension free needs) were correlated with looking for social or emotional supports. The following present various situations in which the participants were motivated to ask a question to satisfy different needs in each participant's unique situation by having social or emotional

supports in online Q&A.

*Cognitive Needs.* It was found that the when participants tended to ask a question to seek other people's opinions or advice to resolve their issues or make decisions, they more likely looked for social or emotional supports (N=8, 40%). This confirms the findings that there was no statistical significance in the relationship between finding factual or objective information in immediate surroundings, society and the world in cognitive needs and looking for social or emotional supports, which were found in the survey data analysis.

*Social Integrative Needs.* It was also found that people sometimes expect to have social or emotional supports when they were motivated to ask a question for social interactions or conversations with others in the context of online Q&A. One of the participants in Yahoo! Answers asked a question about how people cope with negative feelings (e.g., sad, unmotivated, etc.) and wanted to have an open discussion with other people.

“sometimes you just feel like you're not doing anything or that you're not going anywhere or achieving what you want to achieve so you get kind of depressed so I was thinking of something I could do that would make me feel better....”

However, it was found that she did not intend to have a new friend or acquaintance from Yahoo! Answers although she was willing to have conversations with other users to share others' suggestions or advices.

“.... I could do that but then you get afraid that you're going to get a crazy person talking to you, you get worried because some people they get and think- and if you don't say something they like they might give your email address out and you might have spam mail or something.”

This comment confirms that the having a substitute for real-life companionship, one of

sub-categories in social integrative needs, was rated as one of the least motivational factors among the survey participants.

*Tension Free Needs.* A total of 3 incidents were occurred in the diary data collection, which illustrate how tension free needs were related with looking for social or emotional supports. One of the participants in Yahoo! Answers, for example, wanted to know how other people think about the music video she previously watched. She indicated that she was bored and happened to ask the question in Yahoo! Answers.

“I watched the video on Facebook and I saved the link to show someone but I lost it and I wanted to find it but I couldn’t and it was irritating.... Just bored and wondering if I am alone in this opinion.”

Her motivation to ask a question was to pass time by having the question-answering interactions in Yahoo! Answers. But, she wanted to have some support from other Yahoo! Answers users that might help her to think that she was not the only person who found the music video irritating.

#### **5.5.3.5. Social Assurance for Confirming Ideas**

People utilize online Q&A in order to receive objective information and/or personal opinions or advice to confirm whether or not the facts or norms that an asker believes are correct. This type of information seeking is identified as ‘social assurance for conforming ideas’ through the question-answering processes, which an asker tends to verify their own belief or knowledge.

A total of 9 incidents occurred during the diary data collection, which illustrate how looking for verification for own belief or knowledge was related with different

motivational factors when they ask a question in online Q&A. The following presents various cases providing different incidents in which people were motivated to ask a question to satisfy different motivations, while they expect to verify their idea or belief by having an answer(s) from others.

*Cognitive Needs.* Two incidents were identified that represent the relationship between looking for verification of own belief or knowledge and cognitive needs. It seems that people expect to verify their own belief or knowledge by receiving other peoples' opinions or advices when they ask a question in online Q&A. These incidents represented this relationship, and it appears that people want to receive either objective information and/or others' opinions or thoughts on an asker's question. One WikiAnswers participant asked whether or not a person who is allergic to penicillin eat blue cheese, which she tends to receive accurate information from someone who has a professional background in the question topic.

“I am just curious. You see, blue cheese probably has the same mold that is used to make penicillin.... I have a feeling the answer is yes, so I want to know if that is true.”

This example describes that she wanted to verify what she believes by having a reliable information sources provided from subject experts.

*Affective Needs.* Two incidents were observed during the diary data analysis, which illustrate how affective needs were related to looking for verification of own belief or knowledge. This relationship signifies that people may be motivated to ask a question to have social or emotional supports for personal issues, while they want to confirm what they believe is not wrong by the question-answering interactions with others. For instance,



one participant asked about his personal current issues that he had a difficult time to figuring out himself. He wants to have social supports from Yahoo! Answers to make sure that he is not wrong on what he believes in the situation.

“I’m looking for an answer as to why my ex female coworker doesn’t want her boss to know that we still talk. My female coworker told me she just wanted to keep her private life private but I think there is still a deeper reason why she wants it private..... I believe that she wants to keep private because she wants a romantic relationship because I would like for others to tell me if I’m correct or not.”

*Social Integrative Needs.* The relationship between looking for verification of own belief or knowledge and social integrative needs indicates that people may want to have an open discussion with other people who have similar interests in order to validate what they believe. For example, one participant asked a question about the best NBA players in their position. He included his own opinions about players in each position as additional information in his question, and wanted to share thoughts with other people who have similar interests in Yahoo! Answers.

“I was interesting to see other people think about this....trying to get verification for my ideas....Most people answered, they said LeBron James.... they disagreed with me on other players, I was mostly correct. Everyone has the same opinions on what makes the best player, some people think its defense some think its offense. LeBron James.... so you can't disagree on that.....”

#### **5.5.3.6. Finding Authoritative Information for Needs**

‘Finding authoritative information for needs’ is referred to as a form of information seeking in online Q&A, which an asker tends to look for more credible or authoritative information to satisfy an asker’s need.

Even though the survey participants rated looking for trustful sources as one the frequent expectation-based factors when they ask a question in online Q&A, only 3

incidents occurred in which the participants looked for trustful resources from other online Q&A users in order to satisfy their cognitive and affective needs. One participant, for instance, vocalized how her motivation and expectation for an asking question was related to see authoritative information about the product in WikiAnswers.

“Randomly, taking a shower I saw there were very bright sparkles in my shampoo and I read the back ingredients and there's nothing that should explain that and I wanted to know exactly what they were.... I was hoping that somebody who had a truthful answer would actually answer instead of something who's taking a guess or something.”

## **5.5. RQ4: Comparison between Motivation and Expectation**

The previous sections have focused on investigating motivational and expectation-based factors for asking a question in both Yahoo! Answers and WikiAnswers. The following two sections present a series of independent sample t-tests in order to investigate either differences and/or similarities in user motivations and expectations for asking a question between Yahoo! Answers and WikiAnswers.

### **5.5.1. Comparison of motivations between Yahoo! Answers and WikiAnswers**

First, a series of independent samples t-tests with the survey data were conducted to investigate any differences in motivational factors between Yahoo! Answers and WikiAnswers. It was found that there were no statistical differences in motivations between Yahoo! Answers and WikiAnswers except one-variable - looking for social and emotional supports within affective needs.

This indicates that the WikiAnswers users are motivated relatively stronger than people in Yahoo! Answers to ask a question to seek social or emotional supports for

someone else such as family members or friends. Details of differences in each motivational factor between Yahoo! Answers and WikiAnswers are presented in Table 5.37.

Table 5.37. Differences in motivations between Yahoo! Answers and WikiAnswers.

Motivations	Yahoo! Answers		WikiAnswers		t	df	Sig.
	Mean	S.D.	Mean	S.D.			
Cognitive needs	3.45	0.88	3.57	0.93	.963	224	.337
Finding relevant information	3.44	1.16	3.55	1.10	.693	224	.489
Seeking advice or opinion for making decisions	3.40	1.33	3.40	1.27	.018	224	.986
Learning; self-education through acquiring information	3.67	1.23	3.76	1.19	.576	224	.565
Gaining a sense of security through knowledge	3.29	1.34	3.55	1.16	1.560	224	.120
Affective needs	2.76	1.14	3.03	1.15	1.791	224	.075
Looking for social and emotional support for personal issues	2.70	1.40	2.87	1.33	.934	224	.352
Looking for social and emotional support for someone else	2.50	1.34	2.88	1.34	2.118	224	.035*
Looking for attainment on personal thoughts or ideas	3.08	1.22	3.35	1.19	1.670	224	.096
Personal integrative needs	2.86	1.18	3.01	1.13	.991	224	.323
Finding support for one's own values	2.77	1.35	2.94	1.28	.963	224	.337
Gaining insight into one's own life	2.87	1.30	3.10	1.29	1.31	224	.192
Experiencing empathy with others' problems	2.94	1.30	3.00	1.26	.365	224	.715
Social integrative needs	2.54	1.12	2.80	1.17	1.693	224	.092
Identifying with others and gaining a sense of belonging	2.65	1.32	2.80	1.29	.855	224	.394
Finding a basis for conversation and social interaction	2.73	1.29	3.07	1.29	1.966	224	.050
Having a substitute for real-life companionship	2.13	1.24	2.40	1.36	1.574	224	.117
Feeling connected with other people	2.63	1.26	2.91	1.31	1.604	224	.110
Tension free needs	2.93	1.02	3.05	1.02	.826	224	.410
Having fun asking a question	3.48	1.26	3.40	1.22	-.506	224	.613
Filling time	2.81	1.31	3.12	1.17	1.855	224	.065

Emotional release	2.51	1.35	2.62	1.35	.618	224	.537
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*Note* \*  $p < .05$

Even though analysis of the survey data did not reveal any significant differences in user motivation for asking a question between Yahoo! Answers and WikiAnswers, except one sub-variable, analysis of the diary data found that there were several incidents in which the participants were motivated by different needs during a 4-week period of the diary data collection. For example, it was found that the participants more frequently asked a question to satisfy their personal integrative needs (N=13, 17.11%) than the participants from Yahoo! Answers (N=8, 6.20%), while the participants from Yahoo! Answers attempted to ask a question to satisfy their social integrative needs more frequently (N=13, 10.08%) than the WikiAnswers participants did (N=1, 1.32%). Additionally, it was also found that tension free needs were identified as the more frequent motivational factor for asking a question in Yahoo! Answers (N=16, 12.40%).

### **5.5.2. Comparison of expectations between Yahoo! Answers and WikiAnswers**

Another series of independent samples t-tests were conducted in order to evaluate the differences in expectations from other WikiAnswers with respect to the question. There were no statistically significant differences in expectations between Yahoo! Answers and WikiAnswers. These findings indicate that there would be similar criteria that articulate an asker's expectations for answers to his or her question in both Yahoo! Answers and WikiAnswers. Table 5.38 presents the details of differences in each motivational factor between Yahoo! Answers and WikiAnswers.

Table 5.38. Differences in expectations between Yahoo! Answers and WikiAnswers.

Expectations	Yahoo! Answers		WikiAnswers		t	df	Sig.
	Mean	S.D.	Mean	S.D.			
Looking for quick responses	3.74	1.15	3.88	1.15	.920	224	.358
Looking for additional or alternative information	3.90	0.94	3.97	0.94	.583	224	.560
Looking for accurate or complete information	3.86	1.15	3.88	1.20	.146	224	.884
Looking for social or emotional supports	2.56	1.33	2.77	1.32	1.165	224	.245
Looking for verification for own belief or knowledge	3.29	1.23	3.34	1.27	.277	224	.782
Looking for Trustworthy sources	3.60	1.19	3.40	1.29	-1.179	224	.240

Analysis of the diary data confirmed that the three cognitive-based expectations were the most frequent expectations from other online Q&A users with respect to their answers to the questions in the incidents identified during a 4 week period of the diary data collections in both Yahoo! Answers and WikiAnswers: (1) looking for quick responses (N=28, 27.71% in Yahoo! Answers; N=29, 38.16% in WikiAnswers); (2) looking for additional or alternative information (N=25, 19.38% in Yahoo! Answers; N=11, 14.47% in WikiAnswers); and (3) looking for accurate or complete information (N=51, 39.53% in Yahoo! Answers; N=26, 34.21% in WikiAnswers). However, even though looking for additional or alternative information was rated as the most significant expectation-based factor, analysis of the diary data indicated that looking for accurate or complete information was the most frequent expectation-based factor in both Yahoo! Answers and WikiAnswers. This difference in expectation between the analysis of the

survey and the diary data may be caused by the question types that the participants asked during the diary data collection. It was found that a fact-finding question that solicits factual or objective information was found as the most frequent question type (N=50, 38.75% in Yahoo! Answers; N=51, 67.11% in WikiAnswers). Thus, it may infer that the participants more frequently looked for accurate or complete information from other online Q&A users to satisfy their needs. Nonetheless, it was found from analysis of the diary and interview data that there were no such differences in user expectations between Yahoo! Answers and WikiAnswers.

### **5.5.3. Comparison of relationships between motivations and expectations between Yahoo! Answers and WikiAnswers**

First, the relationships between all motivational factors and looking for quick responses were evaluated to examine the similarities and differences between Yahoo! Answers and WikiAnswers. It was found that in both online Q&A services cognitive needs had a statistically significant relationship with looking for quick responses, except seeking advice or opinions for making decisions in WikiAnswers. This relationship indicates that people may look for quick responses when they ask a question to solicit objective or factual information for satisfying their need in a cognitive state in both Yahoo! Answers and WikiAnswers, while people more likely want to receive others' opinions or advices for making decision in a timely manner after asking a question in only Yahoo! Answers.

It was also found that looking for quick response was statistically correlated with affective needs, especially looking for social or emotional supports for personal own

issues in both Yahoo! Answers and WikiAnswers. Furthermore, tension free needs were also statistically correlated with looking for quick responses in both Yahoo! Answers and WikiAnswers, suggesting that receiving quick answers from other online Q&A users is a critical factor, which affects on peoples's evaluative criteria to judge information quality when they are motivated by tension free need to ask a question. Yet, it was also found that the Yahoo! Answers participants more likely look for quick responses when they are motivated to ask a question for releasing their emotions, while the WikiAnswers participants more likely look for quick responses when they are motivated to ask a question for having fun.

In terms of personal and social integrative needs, it was found that there were only statistically significant relationships with looking for quick responses in WikiAnswers. Table 5.39 presents a summary of comparison of the relationships between all motivational factors and looking for quick responses between Yahoo! Answers and WikiAnswers.

Table 5.39. Comparison of relationships between all motivational factors and looking for quick responses between Yahoo! Answers and WikiAnswers.

	Online Q&A	B	Std. Error	Sig.
Cognitive needs	Yahoo! Answers	.533	.105	.000**
	WikiAnswers	.364	.119	.003*
Finding relevant information in immediate surroundings, society and the world	Yahoo! Answers	.267	.086	.002*
	WikiAnswers	.270	.101	.009*
Seeking advice or opinions for making decisions	Yahoo! Answers	.218	.075	.004*
	WikiAnswers	.061	.091	.503
Learning; self-education through acquiring information	Yahoo! Answers	.275	.081	.001*
	WikiAnswers	.279	.093	.004*
Gaining a sense of security through knowledge	Yahoo! Answers	.301	.073	.000**
	WikiAnswers	.324	.094	.001*
Affective needs	Yahoo! Answers	.211	.089	.020*

	WikiAnswers	.229	.099	.022*
Social and emotional support	Yahoo! Answers	.215	.072	.003*
for personal issues	WikiAnswers	.253	.083	.003*
Social and emotional support	Yahoo! Answers	.198	.076	.010*
for someone	WikiAnswers	.110	.086	.204
Attainment on personal	Yahoo! Answers	.028	.085	.739
thoughts or ideas	WikiAnswers	.179	.096	.064
Personal integrative needs	Yahoo! Answers	.030	.088	.732
	WikiAnswers	.370	.096	.000**
Finding support for one's own	Yahoo! Answers	.035	.077	.651
values	WikiAnswers	.348	.084	.000**
Gaining insight into one's own	Yahoo! Answers	.060	.080	.452
life	WikiAnswers	.335	.083	.000**
Experiencing empathy with	Yahoo! Answers	-.027	.079	.733
problems of others	WikiAnswers	.177	.090	.052
Social integrative needs	Yahoo! Answers	.083	.093	.376
	WikiAnswers	.273	.095	.005*
Identifying with others and	Yahoo! Answers	.109	.079	.167
gaining a sense of belonging	WikiAnswers	.266	.086	.003*
Finding a basis for conversation	Yahoo! Answers	.070	.080	.385
and social interaction	WikiAnswers	.242	.087	.006*
Having a substitute for real-life	Yahoo! Answers	-.029	.084	.734
companionship	WikiAnswers	.200	.083	.017*
Feeling connected with other	Yahoo! Answers	.088	.083	.290
people	WikiAnswers	.170	.087	.053
Tension free needs	Yahoo! Answers	.221	.099	.027*
	WikiAnswers	.268	.110	.017*
Having fun asking a question	Yahoo! Answers	.112	.082	.173
	WikiAnswers	.228	.092	.015*
Filling time	Yahoo! Answers	.068	.080	.398
	WikiAnswers	.142	.098	.148
Emotional release	Yahoo! Answers	.215	.075	.005*
	WikiAnswers	.162	.084	.057

Note \*  $p < .05$ , \*\*  $p < .001$

Second, all motivational factors were statistically correlated with looking for additional or alternative information in WikiAnswers, while only cognitive and tension free needs were statistically related to looking for additional or alternative information in Yahoo! Answers. Cognitive needs, especially learning through acquiring information, were strongly correlated with looking for additional or alternative information in both



Yahoo! Answers and WikiAnswers, suggesting that people may believe they are able to learn something, depending on their unique situations, from diverse information received to their question.

Additionally, it was found that other motivational factors (i.e., affective needs, personal integrative needs, and social integrative needs) were statistically correlated with looking for additional or alternative information in only WikiAnswers. Table 5.40 provides a summary of comparison of the relationships between all motivational factors and looking for additional or alternative information between Yahoo! Answers and WikiAnswers.

Table 5.40. Comparison of relationships between all motivational factors and looking for additional or alternative information between Yahoo! Answers and WikiAnswers.

	Online Q&A	B	Std. Error	Sig.
Cognitive needs	Yahoo! Answers	.444	.086	.000**
	WikiAnswers	.393	.094	.000**
Finding relevant information in immediate surroundings, society and the world	Yahoo! Answers	.169	.072	.020*
	WikiAnswers	.287	.081	.001*
Seeking advice or opinions for making decisions	Yahoo! Answers	.138	.063	.031*
	WikiAnswers	.201	.072	.006*
Learning; self-education through acquiring information	Yahoo! Answers	.329	.063	.000**
	WikiAnswers	.259	.075	.001*
Gaining a sense of security through knowledge	Yahoo! Answers	.244	.060	.000**
	WikiAnswers	.235	.078	.003*
Affective needs	Yahoo! Answers	.110	.075	.142
	WikiAnswers	.255	.079	.002*
Social and emotional support for personal issues	Yahoo! Answers	.048	.061	.437
	WikiAnswers	.186	.069	.008*
Social and emotional support for someone	Yahoo! Answers	.097	.064	.131
	WikiAnswers	.172	.068	.014*
Attainment on personal thoughts or ideas	Yahoo! Answers	.102	.070	.144
	WikiAnswers	.256	.075	.001*
Personal integrative needs	Yahoo! Answers	.097	.072	.183
	WikiAnswers	.308	.078	.000**
Finding support for one's own	Yahoo! Answers	.001	.064	.991

values	WikiAnswers	.253	.070	.000**
Gaining insight into one's own life	Yahoo! Answers	.127	.066	.055
	WikiAnswers	.305	.067	.000**
Experiencing empathy with problems of others	Yahoo! Answers	.103	.064	.112
	WikiAnswers	.158	.073	.033*
Social integrative needs	Yahoo! Answers	.028	.077	.721
	WikiAnswers	.267	.076	.001**
Identifying with others and gaining a sense of belonging	Yahoo! Answers	.057	.065	.388
	WikiAnswers	.228	.070	.002*
Finding a basis for conversation and social interaction	Yahoo! Answers	.037	.067	.584
	WikiAnswers	.244	.069	.001*
Having a substitute for real-life companionship	Yahoo! Answers	-.066	.070	.344
	WikiAnswers	.148	.068	.032*
Feeling connected with other people	Yahoo! Answers	.042	.069	.545
	WikiAnswers	.239	.068	.001**
Tension free needs	Yahoo! Answers	.211	.081	.011*
	WikiAnswers	.309	.087	.001*
Having fun asking a question	Yahoo! Answers	.192	.066	.004*
	WikiAnswers	.238	.074	.002*
Filling time	Yahoo! Answers	.139	.065	.034*
	WikiAnswers	.208	.078	.009*
Emotional release	Yahoo! Answers	.061	.064	.342
	WikiAnswers	.175	.068	.011*

Note \*  $p < .05$ , \*\*  $p < .001$

Third, in terms of relationships between all motivational factors and looking for accurate information, it was found that in both Yahoo! Answers and WikiAnswers cognitive needs were statistically correlated with looking for accurate information when people ask a question, except seeking advice or opinions for making decisions and learning; self-education through acquiring information in Yahoo! Answers. This indicates that people who use Yahoo! Answers may not necessarily look for accurate or complete information when they try to ask a question to seek others' personal opinions or advices on specific situations, or to learn something from others' previous experiences.

In regard with other motivational factors such as affective needs, personal and social integrative needs, and tension free needs, it seems that these motivational

factors have statistically significant relationships with looking for accurate or complete information in only WikiAnswers. Nonetheless, there was no statistically significant relationship between tension free needs and looking for accurate or complete information in both Yahoo! Answers and WikiAnswers, except having fun asking a question within tension free needs in WikiAnswers. Table 5.41 provides a summary of comparison of the relationships between all motivational factors and looking for accurate or complete information between Yahoo! Answers and WikiAnswers.

Table 5.41. Comparison of relationships between all motivational factors and looking for accurate or complete information between Yahoo! Answers and WikiAnswers.

	Online Q&A	B	Std. Error	Sig.
Cognitive needs	Yahoo! Answers	.356	.110	.002*
	WikiAnswers	.513	.119	.000**
Finding relevant information in immediate surroundings, society and the world	Yahoo! Answers	.316	.084	.000**
	WikiAnswers	.411	.102	.000**
Seeking advice or opinions for making decisions	Yahoo! Answers	.113	.077	.144
	WikiAnswers	.224	.093	.018*
Learning; self-education through acquiring information	Yahoo! Answers	.142	.083	.090
	WikiAnswers	.372	.095	.000**
Gaining a sense of security through knowledge	Yahoo! Answers	.155	.076	.044*
	WikiAnswers	.286	.100	.005*
Affective needs	Yahoo! Answers	.033	.091	.720
	WikiAnswers	.221	.103	.035*
Social and emotional support for personal issues	Yahoo! Answers	-.012	.074	.874
	WikiAnswers	.179	.089	.047*
Social and emotional support for someone	Yahoo! Answers	.005	.078	.949
	WikiAnswers	.093	.090	.304
Attainment on personal thoughts or ideas	Yahoo! Answers	.086	.084	.310
	WikiAnswers	.271	.098	.007*
Personal integrative needs	Yahoo! Answers	.115	.088	.191
	WikiAnswers	.372	.101	.000**
Finding support for one's own values	Yahoo! Answers	.129	.076	.094
	WikiAnswers	.323	.089	.000**
Gaining insight into one's own life	Yahoo! Answers	.099	.080	.219
	WikiAnswers	.389	.085	.000**

Experiencing empathy with problems of others	Yahoo! Answers	.041	.078	.600
	WikiAnswers	.152	.095	.112
Social integrative needs	Yahoo! Answers	-.007	.093	.943
	WikiAnswers	.317	.098	.002*
Identifying with others and gaining a sense of belonging	Yahoo! Answers	.043	.079	.592
	WikiAnswers	.272	.090	.003*
Finding a basis for conversation and social interaction	Yahoo! Answers	-.024	.081	.770
	WikiAnswers	.321	.088	.000**
Having a substitute for real-life companionship	Yahoo! Answers	-.012	.084	.886
	WikiAnswers	.216	.086	.014*
Feeling connected with other people	Yahoo! Answers	-.040	.083	.634
	WikiAnswers	.211	.090	.021*
Tension free needs	Yahoo! Answers	.081	.101	.422
	WikiAnswers	.203	.117	.086
Having fun asking a question	Yahoo! Answers	.073	.082	.378
	WikiAnswers	.208	.097	.034*
Filling time	Yahoo! Answers	.017	.080	.834
	WikiAnswers	.164	.102	.110
Emotional release	Yahoo! Answers	.053	.077	.491
	WikiAnswers	.052	.089	.562

Note \*  $p < .05$ , \*\*  $p < .001$

Fourth, it was found that in both Yahoo! Answers and WikiAnswers there were statistically significant relationships between all motivational factors and looking for social and emotional factors, except finding relevant information in immediate surroundings, society and the world, suggesting that people do not have a tendency to look for social or emotional supports from other people when they are motivated to ask a question for seeking factual or objective information.

Additionally, these results indicate that people look for social or emotional supports to satisfy different needs when asking a question such as seeking professional advices, finding social interactions, or just having fun asking a question depending on an asker's unique situations or contexts. Table 5.42 provides a summary of comparison of the relationships between all motivational factors and looking for social or emotional

supports between Yahoo! Answers and WikiAnswers.

Table 5.42. Comparison of relationships between all motivational factors and looking for social or emotional supports between Yahoo! Answers and WikiAnswers.

	Online Q&A	B	Std. Error	Sig.
Cognitive needs	Yahoo! Answers	.441	.124	.001*
	WikiAnswers	.434	.136	.002*
Finding relevant information in immediate surroundings, society and the world	Yahoo! Answers	.196	.099	.050
	WikiAnswers	.163	.119	.176
Seeking advice or opinions for making decisions	Yahoo! Answers	.311	.084	.000**
	WikiAnswers	.239	.102	.021*
Learning; self-education through acquiring information	Yahoo! Answers	.065	.095	.495
	WikiAnswers	.224	.109	.043*
Gaining a sense of security through knowledge	Yahoo! Answers	.282	.084	.001*
	WikiAnswers	.443	.105	.000**
Affective needs	Yahoo! Answers	.721	.081	.000**
	WikiAnswers	.686	.093	.000**
Social and emotional support for personal issues	Yahoo! Answers	.639	.076	.000**
	WikiAnswers	.517	.084	.000**
Social and emotional support for someone	Yahoo! Answers	.533	.075	.000**
	WikiAnswers	.448	.102	.000**
Attainment on personal thoughts or ideas	Yahoo! Answers	.475	.086	.000**
	WikiAnswers	.448	.102	.000**
Personal integrative needs	Yahoo! Answers	.590	.085	.000**
	WikiAnswers	.821	.084	.000**
Finding support for one's own values	Yahoo! Answers	.521	.074	.000**
	WikiAnswers	.622	.083	.000**
Gaining insight into one's own life	Yahoo! Answers	.447	.082	.000**
	WikiAnswers	.656	.079	.000**
Experiencing empathy with problems of others	Yahoo! Answers	.434	.080	.000**
	WikiAnswers	.639	.083	.000**
Social integrative needs	Yahoo! Answers	.698	.085	.000**
	WikiAnswers	.843	.075	.000**
Identifying with others and gaining a sense of belonging	Yahoo! Answers	.565	.075	.000**
	WikiAnswers	.673	.078	.000**
Finding a basis for conversation and social interaction	Yahoo! Answers	.592	.075	.000**
	WikiAnswers	.721	.073	.000**
Having a substitute for real-life companionship	Yahoo! Answers	.436	.087	.000**
	WikiAnswers	.637	.073	.000**
Feeling connected with other people	Yahoo! Answers	.546	.081	.000**
	WikiAnswers	.669	.076	.000**
Tension free needs	Yahoo! Answers	.631	.100	.000**

	WikiAnswers	.715	.108	.000**
Having fun asking a question	Yahoo! Answers	.219	.091	.018*
	WikiAnswers	.319	.104	.003*
Filling time	Yahoo! Answers	.289	.087	.001*
	WikiAnswers	.394	.106	.000**
Emotional release	Yahoo! Answers	.638	.066	.000**
	WikiAnswers	.662	.072	.000**

Note \*  $p < .05$ , \*\*  $p < .001$

Fifth, in terms of looking for verification for own belief or knowledge, it was found that in only Yahoo! Answers the cognitive needs were statistically correlated with this type of expectation. Other motivational factors such as affective needs, personal and social integrative needs, and tension free needs had statistically significant relationships with looking for verification for own belief or knowledge in both Yahoo! Answers and WikiAnswers. Table 5.43 presents a summary of comparison of the relationships between all motivational factors and looking for verification for own belief or knowledge between Yahoo! Answers and WikiAnswers.

Table 5.43. Comparison of relationships between all motivational factors and looking for verification for own belief or knowledge between Yahoo! Answers and WikiAnswers.

	Online Q&A	B	Std. Error	Sig.
Cognitive needs	Yahoo! Answers	.647	.107	.000**
	WikiAnswers	.266	.135	.053
Finding relevant information in immediate surroundings, society and the world	Yahoo! Answers	.380	.087	.000**
	WikiAnswers	.069	.116	.556
Seeking advice or opinions for making decisions	Yahoo! Answers	.197	.080	.016*
	WikiAnswers	.096	.101	.341
Learning; self-education through acquiring information	Yahoo! Answers	.311	.084	.000**
	WikiAnswers	.179	.107	.095
Gaining a sense of security through knowledge	Yahoo! Answers	.415	.073	.000**
	WikiAnswers	.314	.106	.004*
Affective needs	Yahoo! Answers	.398	.089	.000**
	WikiAnswers	.610	.094	.000**
Social and emotional support for personal issues	Yahoo! Answers	.257	.075	.001*
	WikiAnswers	.567	.078	.000**

Social and emotional support for someone	Yahoo! Answers	.262	.079	.001*
	WikiAnswers	.409	.086	.000**
Attainment on personal thoughts or ideas	Yahoo! Answers	.387	.083	.000**
	WikiAnswers	.463	.097	.000**
Personal integrative needs	Yahoo! Answers	.378	.087	.000**
	WikiAnswers	.741	.086	.000**
Finding support for one's own values	Yahoo! Answers	.349	.075	.000**
	WikiAnswers	.588	.081	.000**
Gaining insight into one's own life	Yahoo! Answers	.320	.080	.000**
	WikiAnswers	.634	.076	.000**
Experiencing empathy with problems of others	Yahoo! Answers	.228	.080	.005*
	WikiAnswers	.506	.088	.000**
Social integrative needs	Yahoo! Answers	.449	.090	.000**
	WikiAnswers	.672	.086	.000**
Identifying with others and gaining a sense of belonging	Yahoo! Answers	.333	.078	.000**
	WikiAnswers	.535	.084	.000**
Finding a basis for conversation and social interaction	Yahoo! Answers	.365	.079	.000**
	WikiAnswers	.642	.076	.000**
Having a substitute for real-life companionship	Yahoo! Answers	.312	.085	.000**
	WikiAnswers	.448	.083	.000**
Feeling connected with other people	Yahoo! Answers	.368	.081	.000**
	WikiAnswers	.535	.082	.000**
Tension free needs	Yahoo! Answers	.453	.098	.000**
	WikiAnswers	.615	.110	.000**
Having fun asking a question	Yahoo! Answers	.359	.081	.000**
	WikiAnswers	.415	.096	.000**
Filling time	Yahoo! Answers	.223	.082	.007*
	WikiAnswers	.373	.103	.000**
Emotional release	Yahoo! Answers	.262	.078	.001*
	WikiAnswers	.429	.084	.000**

Note \*  $p < .05$ , \*\*  $p < .001$

Finally, cognitive and personal integrative needs were statistically correlated with looking for trustworthy sources in both Yahoo! Answers and WikiAnswers. However, the findings indicate that people do not tend to look for authoritative information when they are motivated to ask a question for seeking advice or opinions for making decisions within cognitive needs in WikiAnswers. Yet people do not look for authoritative information to find supports for their own values within personal integrative needs in

Yahoo! Answers.

For other motivational factors such as affective needs, social integrative needs, and tension free needs, it was found that there were significant relationships between other motivational factors (i.g., affective needs, social integrative needs, and tension free needs) and looking for trustworthiness in only WikiAnswers. Table 5.44 presents a summary of comparison of the relationships between all motivational factors and looking for trustworthiness between Yahoo! Answers and WikiAnswers.

Table 5.44. Comparison of relationships between all motivational factors and looking for trustworthy sources between Yahoo! Answers and WikiAnswers.

	Online Q&A	B	Std. Error	Sig.
Cognitive needs	Yahoo! Answers	.547	.108	.000**
	WikiAnswers	.378	.134	.006*
Finding relevant information in immediate surroundings, society and the world	Yahoo! Answers	.288	.088	.001*
	WikiAnswers	.282	.114	.015*
Seeking advice or opinions for making decisions	Yahoo! Answers	.261	.077	.001*
	WikiAnswers	.138	.101	.178
Learning; self-education through acquiring information	Yahoo! Answers	.257	.084	.003*
	WikiAnswers	.261	.106	.016*
Gaining a sense of security through knowledge	Yahoo! Answers	.282	.076	.000**
	WikiAnswers	.275	.108	.013*
Affective needs	Yahoo! Answers	.181	.093	.053
	WikiAnswers	.521	.101	.000**
Social and emotional support for personal issues	Yahoo! Answers	.124	.076	.106
	WikiAnswers	.446	.087	.000**
Social and emotional support for someone	Yahoo! Answers	.086	.080	.288
	WikiAnswers	.301	.092	.001*
Attainment on personal thoughts or ideas	Yahoo! Answers	.202	.086	.020*
	WikiAnswers	.504	.096	.000**
Personal integrative needs	Yahoo! Answers	.213	.089	.018*
	WikiAnswers	.653	.095	.000**
Finding support for one's own values	Yahoo! Answers	.146	.079	.065
	WikiAnswers	.504	.088	.000**
Gaining insight into one's own life	Yahoo! Answers	.199	.081	.015*
	WikiAnswers	.570	.083	.000**
Experiencing empathy with	Yahoo! Answers	.160	.080	.047*



problems of others	WikiAnswers	.449	.092	.000**
Social integrative needs	Yahoo! Answers	.115	.096	.231
	WikiAnswers	.559	.095	.000**
Identifying with others and gaining a sense of belonging	Yahoo! Answers	.098	.081	.231
	WikiAnswers	.433	.091	.000**
Finding a basis for conversation and social interaction	Yahoo! Answers	.108	.083	.196
	WikiAnswers	.530	.085	.000**
Having a substitute for real-life companionship	Yahoo! Answers	-.002	.087	.981
	WikiAnswers	.402	.086	.000**
Feeling connected with other people	Yahoo! Answers	.139	.085	.104
	WikiAnswers	.427	.089	.000**
Tension free needs	Yahoo! Answers	.083	.104	.424
	WikiAnswers	.470	.118	.000**
Having fun asking a question	Yahoo! Answers	.099	.085	.245
	WikiAnswers	.385	.099	.000**
Filling time	Yahoo! Answers	-.005	.082	.949
	WikiAnswers	.280	.107	.010*
Emotional release	Yahoo! Answers	.055	.079	.491
	WikiAnswers	.276	.092	.003*

Note \*  $p < .05$ , \*\*  $p < .001$

Analysis of the diary and interview data found that the three cognitive-based expectations (i.e., looking for quick responses, looking for additional or alternative information, and looking for accurate or complete information) were frequently correlated with all motivation factors, suggesting that no matter how people are motivated to ask a question, they more likely look for one of these expectations. This would depend on an asker's problematic situations where different favorable expectations may be determined in his or her questioning behavior in online Q&A services.

However, analysis of the diary and interview data found that there were no significant differences in the relationships between user motivations and expectations. It was found that there were statistically significant differences between Yahoo! Answers and WikiAnswers, e.g., the relationships between personal integrative needs with the three cognitive-based expectations, the relationships between social integrative

needs with three cognitive-based expectations. It was also found that there were significant relationships between these motivational and expectations-based factors in only WikiAnswers.

The findings from the analysis of the diary and interview data with regard to the relationship between motivations and expectations, may indicate that user motivations and expectations are correlated with one another when asking a question are not affected by a specific online Q&A services, but developed by unique situations in which they perceive the question-answering interactions could be helpful to get such contextual information from other people.

## **5.6. Additional Findings**

One of the findings on user motivations for asking a question emerged from analysis of the interview data in the study was that the extension of uses and gratification theory that was used in order to investigate users' individual differences in needs that motivate online Q&A use for asking a question. Previous studies employed uses and gratifications theory as a theoretical framework to measure users' motivations and needs for media use treated each need (e.g., cognitive needs, affective needs, etc.) separately. This indicates that although there have been several previous research studies where exploratory factor analysis was conducted to yield any identifiable characteristics of media users based on their survey or interview responses (see Clavio & Kian, 2010; Park, Kee, & Valenzuela, 2009 for the examples of exploratory factor analysis in research employed the uses and gratifications theoretical framework), it has not been concerned

with whether or not each individual's need for using a specific media might be dynamically mixed based on his/her contextual situation. This may be because the previous studies did not specifically investigate each time of media use, but instead examined users' overall need of using different media (e.g., television, newspaper, social media, etc.).

However, as the interview data analysis progressed, it was found that people were sometimes motivated in more than one state when asking a question in online Q&A. Two coders conducted content analysis for the interview transcriptions with 205 questions and their initial motivation data. Coders first coded 4 participants in order to ensure coding consistency throughout the process. The final Kappa value for intercoder reliability between two coders was 0.712. Based on suggestions by Landis & Koch (1977) about Kappa values – 0.40 to 0.59 are considered moderate, 0.60 to 0.79 substantial, and 0.80 outstanding – it can be argued that for intercoder reliability for content analysis is acceptable in the study. 23 different incidents (11.22%) were found that a dynamic combination among five different motivational factors has been developed based on each participant's specific and unique contextual situation. Table 5.45 present participants' comments of how different motivational factors were combined for each question they asked in Yahoo! Answers and WikiAnswers in the study.

Table 5.45. Examples of questions with more than one motivation.

Question	Motivations
Why do some people loiter around convenience stores?	“Not really sure.... it bothers me when I cannot walk or ride a bike past convenience stores without African-American men bothering me. It may be cognitive, affective, and tension-free needs.”

If aliens abducted my embryos, does God give the hybrid baby a soul?	<p>“I tried to get other people opinion about my question in [Yahoo! Answers]... but also tried to kill time when I asked a question...”</p> <p>“I was looking for professional advices from like trustworthy doctor... but I wanted to talk to someone about my problem when I asked a question...”</p> <p>“It was my personal situation related question, and [cognitive needs] are the closest, though affective might also apply here because I was also looking for some supports through anonymous communication.”</p>
How do I increase white blood count	
How can truly passive persons be themselves without being seen as a mark by others?	
Can bossiness be disciplined out of a child?	<p>“Not sure. I am mostly after knowledge here, but it is also sort of emotional and tension free. I don't have the exact situation, though...”</p> <p>“I was on YouTube watching videos of Filipinos they're either pacific islander or Asian and that made me want to ask a question on yahoo answers....This was not just a cognitive need but I guess just social integrative needs, too [because] I was also looking for some factual answers but also other peoples perspectives.”</p>
Do Filipinos consider themselves Pacific Islanders or Asian?	
How can you instantly silence intrusive thoughts and memories?	<p>“I was not sure where to put this as just affective need for supports, but it is for emotional self-release needs as well...”</p>

Another new finding on user expectations for asking a question in the study was that there was an emergent theme found from the interview data analysis. Two coders conducted content analysis for the interview transcriptions with 205 questions and their initial expectation related data. Coders first coded 4 participants in order to ensure coding consistency throughout the process. The final Kappa value for intercoder reliability

between two coders was 0.638. Based on suggestions by Landis & Koch (1977) about Kappa values – 0.40 to 0.59 are considered moderate, 0.60 to 0.79 substantial, and 0.80 outstanding – it can be argued that for intercoder reliability for content analysis is acceptable in the study. 19 questions (9.27%) were identified as participants had more than one expectation from other online Q&A users when asked a question. Table 5.46 present participants' comments of how different expectations were combined for each question they asked in Yahoo! Answers and WikiAnswers in the study.

Table 5.46. Examples of questions with more than one expectation.

Question	Expectations
What does it mean when a girl text a guy "What are you doing tonight"?	"[I was] looking for emotional supports but also looking for other peoples' opinions to verify your knowledge...." "I'm not sure about this one because it wasn't a really a question that I knew why I was asking I think I was just looking for a quick answer or additional answers"
What are the Four Nobel Truths of Buddhism?	"I was looking for additional information... and justification for my idea...."
Why do some people loiter around convenience stores?	"Not sure what to put as what it seems to fill doesn't quite exist, and I am not sure what it is. It might be for sort of a fetish reason and some sort of self-edification."
What are some weird things a woman could wear on her face or head?	"I guess I might be looking for support, but more thorough information. I guess verification could be a minor point."
Why are members of certain ethnic minority groups more likely to read transsexual women	"Not sure..... I am mostly after knowledge here, but it is sort of emotional and tension free. I don't have the exact situation, but I am sick of bossy people."
Can bossiness be disciplined out of a child?	

What does it smell or taste like when coffee goes bad?

“Well I wanted.... I just wanted more info about whether I should toss it or whether it was safe.... does it expire, does it go bad, does it just smell bad, am I just having an off flavor day where my taste buds are funny I don't know I guess I didn't know how exactly to describe it I was just looking for a fact or advice, verification that it made sense to throw it.”

Is it worth it to get the iPad Mini Retina over the first gen?

“I was kind of due for getting a tablet so I wanted to ask a question and see if there was a big difference because they also increased the price of the unit itself and most people were saying get it because it's new but they didn't give the kind of answer I really wanted.... Hoping people lean towards the first gen to save me money, just looking for justification.”

What do you hope to leave to your kids when you pass away?  
Recommended lip balm for winter dry lips that doesn't have petroleum or irritating ingredients?

“To see what others think about the importance of parents and their contribution beyond food and shelter... and I'm not sure if I would say accurate information because the questions I asked were open ended”  
“My lips were really dry because its winter over in Houston TX so I was looking for something that other people have used before... [I was looking for] quick and additional or alternative information as well.... I got an answer I got a good answer someone recommended lip butter and I bought it and it worked.”

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The study focused on the question-answering interactions within the context online Q&A in order to gain a better understanding of why people ask a question and what they expect from other users with respect to their answers to a question. Even though several cases in which user motivations and expectations were

correlated to ask a question and judge information quality were found, there was another finding that illustrates a direct communication via a personal contact information (e.g., email) outside of online Q&A services. In a personal profile, people are allowed to display their contact information (e.g., IM, email in Yahoo! Answers, a direct message board in WikiAnswers). One of the participants from Yahoo! Answers commented that he has had experiences in which he contacted to the person who answered his question in order to get more professional information to solve his issues, while he also received emails from others when he answered their questions.

“.... that is interesting in that way it’s almost like a forum talking to people and I’ve actually gotten messages from people before you can talk to people directly via email and they just email you back and forth and you can talk about anything, and I’ve also direct messaged some folks and we talked to each other via email back and forth and it can go far beyond just yahoo answers so that’s the cool thing about it.”

This signifies that asking a question to initiate social interactions with others in terms of seeking and sharing information may also have implicit motivation of which they may want to contact answerers directly to receive further information sources. The participant indicated that he received an answer from a person who seemed to have a professional background in health-related works, thus he was motivated to ask more questions about his health-related issues to that specific answerer via the answerer’s email given in the personal profile. Therefore, it would be interesting if future studies continue to explore how motivations to ask a question within online Q&A services influence asker’s another motivations to interact with others outside the context of online Q&A, and how motivations would be either different and/or similar between interactions within and outside online Q&A services.

Another finding is that when people were motivated to ask a question in online Q&A services, looking for quick responses was found as one of the significant expectations for judging information quality. However, some participants also indicated that they are willing to wait longer if they can get more comprehensive and personalized information that help them to satisfy their needs in an unique contextual situations.

“I am willing to wait for a good answer from yahoo answers even though it takes more time to get information.... sometimes I'll google and look for things and I don't really find anything or what I find doesn't really seem to answer my question so I feel like maybe I need to ask someone who had a personal experience.”

This confirms the notion of social exchange theory (Blau, 1964), which explains how individual users interact to fulfill their needs in online Q&A services and how they invest their time to wait more time to receive personalized information tailored to a question they ask. Teevan et al. (2013) also argue that there are some situations in which information searchers value the high quality of information over speed. As Cropanzano and Mitchell (2005) pointed out symbolic relevance in social exchange, online Q&A users are voluntarily involved in communities of practice through the question-answering processes in order to receive more contextual information for satisfying their needs.

Finally, the study used Yahoo! Answers and WikiAnswers functions as a test bed to investigate user motivations and expectations for asking a question. There were also attempts to investigate if motivations and expectations were different or similar between these two services. However, it was found that there was not much difference in motivations and expectations between Yahoo! Answers and WikiAnswers although it was assumed that each online Q&A service provide differentiated features in terms of the



question-answering interaction. However, it was also observed that *familiarity* and *personal preference/taste* had impacts on how people choose an online Q&A service to ask a question. In other words, additional features or influential factors of media choice would affect people to choose a particular online Q&A to ask a question.

### **5.7. Summary of Findings**

The theoretical framework of uses and gratification was utilized in the study in order to investigate different motivational factors that drive people to ask a question in online Q&A. Not surprisingly, cognitive needs were identified as the most significant motivational factor for asking a question in both Yahoo! Answers and WikiAnswers, and either finding relevant or factual information and/or seeking others' opinion or advice for decision makings were the key factors for people to ask a question. However, there was no statistical evidence that showed motivational factors could be different between Yahoo! Answers and WikiAnswers, except looking for social and emotional support for someone else (e.g., family, friends, etc.) and finding a basis for conversation and social interaction.

Criteria identified by previous research studies on how people evaluate information within LIS were used to identify an online Q&A user's expectations in the study. The six expectations were identified: (1) looking for quick responses; (2) looking for additional or alternative information; (3) looking for accurate or complete information; (4) looking for social or emotional supports; (5) looking for verification of own belief or knowledge; and (6) looking for trustworthy sources. It was found that looking for additional or alternative information was the most frequent expectation that people look

for from other online Q&A users to satisfy their needs, followed by looking for accurate or complete information, and looking for quick responses. Yet, there were no statistically significant differences in expectations between Yahoo! Answers and WikiAnswers.

In terms of the diary data collection, three major parts were analyzed – question type, question topic, and an asker’s motivation and expectation each time he or she asked a question. Fact-finding questions that solicit factual or objective information were the most frequent type of question that the participants asked during the diary data collection, followed by opinion-seeking questions. Additionally, the participants tended to ask a question most frequently in the “Heath” category, followed by “Education & Reference”, “Entertainment & Music”, “Business and Finance”, and “Science & Mathematics”.

A total of 205 questions were asked during the diary data collections, and the most frequent motivational factor was cognitive needs, followed by personal integrative needs and tension free needs. Even though the survey data analysis found that there were no significant differences in motivational factors between motivations and expectations, the diary analysis revealed that people tend to ask a question more to satisfy their personal integrative needs in WikiAnswers, while people do ask a question more to satisfy their social integrative needs in Yahoo! Answers.

In terms of expectation from other online Q&A users with respect to their answer(s) to a question, it was found that looking for accurate or complete information, followed by looking for quick responses and looking for additional or alternative information. And, the diary analysis confirmed that there was no significant evidence of differences in expectations between Yahoo! Answers and WikiAnswers. However, it was

found that people look for quick responses relatively more in WikiAnswers, while people look for additional or alternative information more in Yahoo! Answers.

The qualitative analysis was conducted with a data collected by phone interviews with 18 participants who participated in the diary data collection in the phase 2. The main goal of implementing the diary data collection in which the participants were required to write a short diary about their motivation and expectation each time they ask a question in Yahoo! Answers and WikiAnswers was to overcome the potential issues of recall of their questioning behaviors, as well as collect records of users' recent activities in online Q&A.

A variety of contextual situations were explored to understand user motivations and expectations within different incidents collected from the diary data collection. One of the findings from the interviews in terms of user motivations and expectations was that they sometimes had more than one motivational and expectations-based factor when they asked a question in online Q&A. Additionally, the interviews also helped to gain a better understanding of how user motivations and expectations are dynamically correlated when people ask a question in the online Q&A environments, depending on each participant's unique contextual situation.

## CHAPTER 6: DISCUSSION

The dissertation focused on gaining a better understanding of contextual backgrounds and situations of information seeking behaviors with emphasis on user motivations and expectation for asking a question in the context of online Q&A services.

A mixed method approach that sequentially employed the Internet-based survey, diary, and interviews, was used in order to investigate information practices in the context of online Q&A with a focus of user motivations and expectation for asking a question. Yahoo! Answers and WikiAnswers were selected because the main focus of the study was to investigate online Q&A users' questioning behavior with most likely unknown people with a wide array of topics or areas, and the four main research questions were proposed: *(1) What motivates people to ask a question that address their needs in Yahoo! Answers and WikiAnswers?; (2) What are an asker's expectations from other users to fulfill his or her needs when asking questions in Yahoo! Answers and WikiAnswers?; (3) How do motivations of asking a question relate to expectations of answer content in Yahoo! Answers and WikiAnswers?; and (4) To what extent are motivations, expectations, and the relationship between motivations and expectations different and/or similar between Yahoo! Answers and WikiAnswers?*

Five motivational factors and six expectation-based factors were identified and measured in order to understand online Q&A users' contextual information needs and personalized criteria to judge answer quality within the question-answering processes. A total of 225 Yahoo! Answers and WikiAnswers first participated in the Internet-based survey in order to investigate the general backgrounds of online Q&A users, as well as

their motivations and expectations for asking a question. Additionally, 18 participants were selected through maximal variance sampling, and recruited in the diary data collection for 4 weeks, as well as the follow-up phone interview.

In this chapter, a summary of the findings for each research question are presented, and the results from each method are synthesized to address the research questions to seek extend and sharpen understandings of findings in the study. Moreover, additional findings from analysis of the interview data are followed in order to expand a scope of understandings of information seeking behaviors through the question-answering processes in the context of online Q&A services, followed by a description of the limitations in the current study.

## **6.1. Key Findings**

### **6.1.1. Motivation**

The study focused on investigating what motivates people to ask a question in online Q&A services where people mostly interact with unknown participants in Yahoo! Answers and WikiAnswers. First, Analysis of the survey data identified that cognitive needs were the most significant motivation factor for asking a question. Specifically, it was found that the participants were highly motivated to learn through acquiring either factual or objective information and/or other peoples' personal opinions and advice, depending on an asker's contextual information need in such a unique situation. Even though learning - self-education through acquiring information - was measured as one of sub-variables in conjunction with other variables such as finding relevant information in immediate surroundings, society and the world, or seeking advice or opinions for making

decisions, the analysis of the interview data indicates that these sub-variables are interrelated with one another. In other words, people who ask a question in online Q&A services have a desire to learn something from information received to their question via the question-answering process. This information could be factual knowledge or opinions or advices from others' personal experience or expertise, depending on an asker's unique contextual situations. The findings confirm that learning is one of the key criteria in the theoretical framework of communities of practice (Wenger, 1998), indicating that a mutual engagement of seeking and sharing information in online Q&A services constitutes social practices that construct informal learning-teaching formations through the question-answering processes among online Q&A users. Moreover, as it was found that the study participants asked questions in a broad array of topics identified during the diary collection, the framework of everyday life information seeking provided a holistic viewpoint of online Q&A users' information seeking through questioning in the dissertation. This framework helped to understand online Q&A users' everyday social practices of acquiring different information in various topics or areas where people look for information from other online Q&A users, ranging from personal health or relationship issues to school work-related question.

The findings of the prominent motivation of asking a question for seeking either factual information and/or other users' personal advice or opinion to satisfy needs in a cognitive state within online Q&A services may be similar to the findings of previous research focusing on investigating the user intent or goal of Web search, which identified that informational searching as one of the prominent intent of Web searching (Broder,

2002; Jensen & Pooh, 2000; Lee, Liu, & Cho, 2005; Rose & Levinson, 2004; Sellen, Murphy, & Shaw, 2002). For example, Jensen and Pooh (2000) found that more than 80% of Web searching was related to information searching, which attempts to identify specific Web pages to retrieve relevant information to satisfy users' searching goal. Moreover, Rose and Levinson (2004) provided a hierarchical framework of what constitutes information searching, and included looking for advice as one of information searching that helps users to learn something through ideas, instructions, or suggestions from Web pages. This may indicate that information behaviors in online Q&A services and the other information sources (e.g., search engines) may share a similar intent or goal.

However, other interview participants also indicated that even though they are aware of which other questions that have been already answered could be existed in online Q&A services, which might be similar to a question they intended to ask, they still wanted to ask their own question to receive new personalized answers from other users, which are just tailored to their own question through the question-answering interactions with others. This may be how online Q&A services may leverage the 'human touch' through human-to-human interactions within the question-answering processes, which is an inherent differentiation from informational searching in the Web even though both online Q&A services and Web searching share a similar intent or goal of information behavior in online environments.

The second most frequent motivational factors were personal integrative needs and tension free needs. This indicates that people are also motivated to ask a question to increase self-esteem by finding support for one's own values or gaining insight into one's

own life. Even though personal integrative needs may be similar to cognitive needs in terms of acquiring information, people who are motivated by personal integrative needs more likely ask a question to gain insights or find values in his or her state of knowledge. For example, it was found that people who are motivated by personal integrative needs attempted to gain insights by verifying their current information or knowledge through information received to their question. One of the interview participants asked about abortion during the diary data collection, and personal integrative needs was her motivation to ask the question in order to verify her current knowledge about abortion through answers from others in WikiAnswers.

“ I know what it is. I know that it is a termination of a pregnancy, but I wanted to know the scientific way [of how] it is done, what exactly happens like the pills someone takes what surgical procedure it is....”

People are sometimes motivated to ask a question in order to seek credibility and insight in a state of knowledge, which they believe that acquiring information through the question-answering interactions with others in online Q&A services may increase their self-esteem in different contexts. Self-esteem is a psychological term, defined as perception of “a person’s belief about whether he or she is intelligent” (Baumeister, Campbell, Krueger, & Vohs, 2003, p.2). Thus, it infers that online Q&A users may be motivated to ask their own question to increase self-confidence (Branden, 1969) of being intelligent by information, experience, knowledge shared by other people to their question in online Q&A services.

In addition, people were also highly motivated to ask a question to satisfy their tension free needs. This indicates that online Q&A services may play an important role in



not only helping people to seek and share information or personal ideas, but also serving as another form of social media platforms in which people attempt to find their own fun or enjoyment through questioning-answering interactions in online Q&A services. For example, one Yahoo! Answers participant commented that online Q&A services are similar to social networking sites such as Facebook or Twitter, which people are allowed to make some online friends and look at other users' activities. In terms of practical implications of online Q&A designs and interfaces, this would suggest a variety of gamification related features (e.g., point, level, social badge, etc.) for the question-answering interactions for situations in which online Q&A users are motivated by tension free need to ask a question. Of course, in online Q&A services, people may not necessarily find real friendships or develop long-term interpersonal relationships through the question-answering interactions, which the findings from the survey in phase 1 support that people are less likely motivated to ask a question to have a substitute for real-life companionship. However, some online Q&A users may still value human-to-human interactions that are temporarily constructed when asking a question to other people in order to satisfy their tension free needs in online Q&A services.

It was found that socio-affective elements (i.e., affective needs, social integrative needs) were less significant motivational factors for asking a question in Yahoo! Answers and WikiAnswers. These results indicate that although online Q&A services mainly support the question-answering interactions for seeking and sharing information, socio-affective characteristics of online Q&A still play an important role in the question-answering processes in which people sometimes tend to be engaged in social interactions

to seek others' supports for problematic situations as the previous studies indicate that emotional supports or social conversations via an open discussion when asked a question were more needed than receiving information (Kim et al., 2007; Shah and Kitzie, 2012). Similarly, even though analysis of the survey data indicated that social integrative needs were the least significant motivational factor for asking a question in both Yahoo! Answers and WikiAnswers, the interview participants also pointed out that they sometimes ask a question to interact with other online Q&A users to share personal thoughts or ideas. For example, one participant commented that he wanted to ask a question related to new PlayStation games in a poll category, in order to have social conversations with others in Yahoo! Answers, rather than seeking any factual information about the games.

One of the new findings in this dissertation was that online Q&A users were sometimes motivated by multiple needs when they ask a question in online Q&A services. For example, people mainly seek professional information from subject experts to get reliable information for their personal problems or issues, while they are also motivated to ask a question to receive social or emotional supports from other online Q&A users. As Maslow (1954) argues that human beings' actions typically have more than one motivation, this finding indicates that an asker's actions, particularly questioning behavior and his or her interactions with others in online Q&A services are sometimes undertaken in pursuit of multiple needs based on an asker's unique situations.

### **6.1.2. Expectation**

In the study, it was assumed that people would expect something from others

with respect to their answers to a question when they articulated their information need by asking a question in online Q&A services. Moreover, they have their own expectation by employing their evaluative criteria to judge answer quality for their unique contextual situations. Thus, it can be argued that people's expectation of information with respect to answers to their question are articulated by their criteria to judge information quality. In this sense, the dissertation used meta-analysis to identify peoples' evaluative criteria from the previous research studies in the field of LIS, and these identified criteria were used to measure online Q&A users' expectation when they ask a question in Yahoo! Answers and WikiAnswers.

This dissertation identified the three major expectations: (1) looking for quick responses; (2) looking for additional or alternative information; and (3) looking for accurate or complete information, which online Q&A users look for from others with respect to their answers when asking a question in online Q&A services. Analysis of the survey indicated that the most substantial expectation when asking a question in online Q&A services was looking for additional or alternative information, followed by looking for accurate or complete information, and looking for quick responses. The diary analysis also confirmed that these three expectations towards answers to their question were the most frequent expectations although analysis of the diary data presented that looking for accurate or complete information was the most frequent expectation identified during the diary data collection. This may be because users' expectation is based on not only their unique situation where different contextual information is needed, but also what kind of question they ask to solve their problematic situations. In other words, since fact-finding

questions that solicit objective or factual information were most frequently asked during the log data collection, looking for accurate information was found as the most frequent expectation from analysis of the diary data.

The most prominent expectations identified in this dissertation were based on a cognitive-based state. This may be because cognitive needs were also the most prominent motivational factor for asking a question in online Q&A services, which indicates that when people are motivated by cognitive needs when asking a question, they may more likely have cognitive expectations from others, which attempt to find relevant information or others' personal opinions or advices through the question-answering interactions for an asker's problematic situations in online Q&A services.

First, online Q&A users tend to look for quick responses from other online users when they ask a question, depending on situations in which an asker is needed to immediately solve problems. The interview participants indicated that one of their prominent reasons behind using online Q&A services to obtain information for their needs is based on their satisfactory experiences in which they received various answers from subject experts quickly to solve their specific problems. Of course, online Q&A users may receive quicker results when they search information through different information seeking behaviors such as using search engines or retrieving similar answered questions in online Q&A services in online environments. However, they may believe that online Q&A services facilitate human-to-human interactions with subject experts who are willing to share their information and knowledge, and these interactions allow him or her to receive tailored information to his or her question quickly.

Additionally, of a total of 57 incidents in which the diary participants indicated that they looked for quick responses from other online Q&A users during the 4-week diary data collection, 40 incidents (70.18%) showed that they asked fact-finding questions when looking for quick responses was their primary expectation from others in online Q&A services. This may signify that when people try to obtain definitive-based factual information through the question-answering interactions, they tend to look for quick responses to satisfy their needs in online Q&A services. As definitive-based information could be provided with certain facts based on a relevant category of question topics, online Q&A users may believe that concise and informative answers could be delivered by subject experts in a short period of time after their fact-finding question is posed in online Q&A services.

The previous study by Choi et al. (2013) also investigated the relationship between question formulation and how quickly the best answer is arrived, which help to fulfill an asker's information needs. The study found that questions that explicitly include an asker's expression of rewarding points for the best answer had significant impacts on receiving the best answer quicker than the questions that do not include an explicit offer to reward points. Even though this dissertation did not explicitly focus on investigating question formulation, the findings from the previous study (Choi et al., 2013) signify that question formulation may affect how well an asker's expectation of receiving quick responses could be fulfilled in online Q&A services. Rewarding points and selecting an answer as a best answer are some of examples of gamifications that may help to improve the question-answering interactions for online Q&A users to seek and share information.

This may indicate that certain gamification-based functionalities of online Q&A services are strongly associated with fulfillment of expectations with respect to other online Q&A users' answers to a question.

Second, looking for accurate information was identified as one of the prominent expectations with respect to others' responses when asking a question in online Q&A services, depending on an asker's situations in which he or she evaluates answer quality based on how accurate information is shared by other online Q&A users when asking a question. As Fichman (2011) argues that accuracy of information is referred to as "the user's perception that the information is correct" (p.478), it reflects subjective perception that an online Q&A user who ask a question determines whether or not answer(s) given to his or her question is correct enough to satisfy information needs. In other words, online Q&A users employ their own personal judgment in order to evaluate how accurate answers are given to their question based on the nature of their motivation and expectation, as well as their unique contextual situations where they decide to ask a question to satisfy their needs. Previous studies have focused on information quality by measuring various perspectives of answers, including accuracy of answers (e.g., Blooma et al., 2008, 2011; Rieh, 2002). In addition, human judgments were also utilized in order to employ subjective measure to investigate how accurate information is given to a question, which fulfills an asker's satisfaction (Liu, Bian, & Agichtein, 2008).

However, these previous studies may be limited in understanding how an asker measures the accuracy of the information given in response to their question in online Q&A services. This is significant because an asker may be only able to judge how well

his or her expectation of receiving accurate or complete information is met with answers provided by other online Q&A users. Additionally, as Shacha (2009) argues, it is unclear that people may even ascertain whether or not the answers for their question are accurate. One of the interview participants asked a question about a scientific subject with her expectation of receiving accurate or complete information. After she received an answer from other WikiAnswer user and commented about her expectation and the answer.

“I was expecting a very scientific answer that I may have been able to completely comprehend. Instead, I got a plain, yet informative answer. I am happy with the results”

This quotation indicates the ways in which an asker’s expectation could be also somehow fulfilled with answers received to his or her question. In other words, user satisfaction for answer quality subjectively may reflect fulfillments of his or her expectation based on how an asker perceives answers for his or her question in online Q&A services.

Finally, online Q&A users prominently look for additional or alternative information when asking a question to satisfy their needs in online Q&A services. The grounds for looking for additional or alternative information through the question-answering interactions for an asker’s needs may be twofold. First is related to the nature of an asker’s contextual information needs, which attempt to seek diverse answers for his or her question. For instance, one of the prominent cognitive-based motivational factors for asking a question is to seek others’ advice or opinions for making decisions. In other words, people utilize online Q&A services to form discussion-oriented or open-ended question-answering interactions in order to seek and share a broad array of information, experiences, or knowledge based on an asker’s needs. The second use is to find

alternative information or second thought from other online Q&A users on an asker's situations. Online Q&A services may not serve as an asker's sole information source that allows him or her to seek information through the question-answering interactions, but one of many information sources that online Q&A users employ to find satisfactory information for their needs. In other word, online Q&A users still use other information sources (e.g., search engines, virtual reference services, etc.) to seek information, while they may employ online Q&A services to ask a question to find another information for different purposes. For example, they may first attempt to search information through search engines (e.g., Bing, Google, Yahoo, etc.), then use their preferred online Q&A services to ask a question to get alternative information for verifying information provided from search engines, or view different aspects of an asker's situations through responses from other online Q&A users.

### **6.1.3. Relationship between Motivation and Expectation**

The study finally focused on investigating the relationship between motivations and expectations when people ask a question in Yahoo! Answers and WikiAnswers. It was found that there were dynamic relationships between motivations and expectations for asking a question in online Q&A services based on an asker's unique contextual situation in which different motivational and expectation-based factors take place in an asker's questioning behavior in online Q&A services. Six different types of information seeking were identified based on the relationship between user motivations and expectations: (1) fast information for needs; (2) additional information for needs; (3) accurate information for needs; (4) supports for situations; (5) social assurance for



confirming ideas; and (6) finding authoritative information for needs. These findings represent how differently users' needs are articulated based on their unique contextual situation in which different favorable expectations would be manipulated to judge answer quality.

Additionally, even though the survey data analysis indicated that personal and social integrative needs were statistically correlated with the cognitive-based expectations: (1) looking for quick responses; (2) looking for additional or alternative information needs; and (3) looking for accurate or complete information in only WikiAnswers, analysis of the interview data did not specifically reveal any significant differences in the relationships between motivations and expectations between Yahoo! Answers and WikiAnswers. This may signify that how the relationship between motivations and expectations for asking a question are developed may be not inherent to a specific type of online Q&A service the users choose to ask a question, but related to an unique contextual situation in which they are motivated to ask a question to satisfy their needs with a certain expectation from other users with respect to their answers to a question in online Q&A environments.

One of the findings in the relationships between motivations and expectations is that while the data analysis indicated affective needs were predictably correlated to expectations for social and emotional supports, this motivational factor was also statistically correlated to other expectations. Especially, the diary analysis also confirmed that the cognitive-based expectations: (1) looking for quick responses; (2) looking for additional or alternative information needs; and (3) looking for accurate or complete

information, were frequently correlated to affective needs. This indicates that when online Q&A users receive answers to their question, they may also find socio-affective supports from such question-answering interactions to receive factual information, professional advices, or others' personal experiences or opinions. This is supported by the findings from the previous research study (Holland, Dukes, & Holahan, 2003), indicating that people have their high desire to get accurate information from experts in order to receive social supports for their health related issues.

Moreover, even though looking for trustworthy sources was highly correlated to cognitive needs, suggesting that people may tend to look for authoritative information to satisfy their need in a cognitive state (e.g., seeking professional advice, finding objective information, etc.), people less likely looked for trustworthy sources as their main expectation to satisfy their needs during the diary data collection; it was found only two incidents presented the relationship of looking for trustworthy sources with cognitive needs and one incident for the relationship between affective needs and looking for trustworthy sources.

“It could be wrong so that's not reliable for facts and for coming to understanding of certain things.”

“... I don't really think that yahoo answers is a good place for validation or fulfilling some sort of need so I prefer to just use it when I really need an opinion that ties into something I'm doing or maybe advice from someone who has had experience so I want something concrete that is usable.”

Even though the previous study confirmed that cognitive authority was a significant factor to evaluate information quality in the online environments (Rieh, 2002), people who ask a question in online Q&A do not always perceive the service as a reliable

information resource in which trustworthy sources could be given to questions. However, it was also found that having external links within the content of the answer increases authoritativeness of information in online Q&A services.

“.... if they can support their information or back it up I actually do appreciate that because you can’t just add your own information you need factual backup information good sources to back it up.... some people can answer and not back it up and it could be a wrong information and not verify and some people do put external links....”

This may suggest that even though looking for trustworthy sources are not an askers’ key expectation from others with respect to their answers to a question, they may be still more likely to evaluate answers with external links as a high quality of information, which fulfill their needs.

#### **6.1.4. Comparison of Motivation and Expectation**

In this dissertation, two different types of online Q&A services were used as the test beds: (1) Yahoo! Answers, and (2) WikiAnswers, which respectively represent community-based online Q&A services and collaborative Q&A services. Although there was no intention to compare these two online Q&A services in this dissertation, analysis of the data was also focused to examine the extent of differences and similarities in user motivation and expectation for asking a question in Yahoo! Answers and WikiAnswers.

In terms of motivation for asking a question in Yahoo! Answers and WikiAnswers, even though analysis of the survey data did not identify a statistical difference in cognitive needs between Yahoo! Answers and WikiAnswers, analysis of the diary data and interviews found that the Yahoo! Answers participants are more likely to

ask opinion- or advice-seeking questions to satisfy their cognitive needs, while the WikiAnswers participants more likely ask fact-finding questions to satisfy cognitive needs. This also supports the finding from the previous study (Choi et al., 2012) where the study found that information-seeking questions soliciting factual information is the most frequent question type people ask in WikiAnswers, whereas opinion- or advice-seeking questions are the predominant question type in Yahoo! Answers. One possible explanation of frequency of asking different question types in Yahoo! Answers and WikiAnswers may be related to the ways of how answers are received to a question in each online Q&A service. Yahoo! Answers allows users to participate in providing their own answer in a question-answer thread, which more than one answer could be potentially delivered by multiple Yahoo! Answers users. Whereas, WikiAnswers users voluntarily participate in paraphrasing an answer given to an asker's question, which indicates that only one answer is ultimately given to a question. Therefore, Yahoo! Answers users tend to ask either opinion- and/or advice-seeking questions that stimulate open-ended discussion through the question-answering interactions with others, while WikiAnswer users may more likely ask fact-finding questions that is deigned to gather a definitive-based answer, which has little alternative but to provide factual or objective information.

Additionally, even though analysis of the survey data did not identify a statistical difference in personal integrative needs between Yahoo! Answers and WikiAnswers, analysis of the diary data and interviews found that the WikiAnswers participants more frequently asked a question for satisfying their personal integrative needs, while the

Yahoo! Answers participants more frequently asked a question for satisfying their social integrative needs. This finding infers that Yahoo! Answers may be the more appropriate place for those who tend to have social interactions or conversations with other people to seek and share their thoughts or ideas. This may be because potentially diverse answers by multiple users could be given to a question within a question-answer thread in Yahoo! Answers, which Yahoo! Answers users have opportunities to initiate social conversations based on an asker's question topic. This may be also related to the facts that Yahoo! Answers users more likely ask opinion- or advice-seeking questions for open-ended discussions in which interactions with others through the question-answering processes may be needed. Another possible explanation of higher frequency of social integrative needs in Yahoo! Answers may be related to question categories where Yahoo! Answers users intend to share ideas or thoughts on their specific interests. For example, as the Yahoo! Answer participant indicated, there is a specific sub-category called 'polls and surveys' in Yahoo! Answers where users are able to ask their own conversational questions (Harper et al., 2009) for finding a basis for conversation and social interaction in order to satisfy their social integrative needs.

In WikiAnswers, personal integrative needs were identified as one of the frequent motivational factor, indicating that WikiAnswers users may be motivated to ask a question for gaining insights into themselves, or reinforcing their personal values by acquiring information through the question-answering processes. As fact-finding questions that solicit factual or objective information are the most frequent question type asked by users in WikiAnswers, it may infer that personal integrative needs may engage

WikiAnswers users into the question-answering interactions in which they more likely look for factual or objective information in order to not only find supports for their own value by verifying their existing knowledge with an answer given to their question, but also gain insightful ideas through definitive information in WikiAnswers.

In terms of expectations between Yahoo! Answers and WikiAnswers, the dissertation attempted to investigate the extent of differences in expectations between Yahoo! Answers and WikiAnswers because each online Q&A service provides differentiated features of how answers are given to a question although Yahoo! Answers and WikiAnswer share the fundamental notion of human information behaviors for seeking and sharing information, experience, and knowledge for an asker's information needs. However, analysis of the data confirmed that there were no significant differences between Yahoo! Answers and WikiAnswers. Especially, it was found that people who use WikiAnswers rated looking for additional information as one of the most prominent expectations when they ask questions. Because people potentially receive only one answer, and other WikiAnswers contributors collaboratively paraphrase an answer in WikiAnswers as opposed to receiving different answers in a question-answer thread in Yahoo! Answers. However, people commented during the interviews that people usually receive an email notification each time WikiAnswers contributors add or revise information in an existing answer, thus they feel like they receive additional information by each time their answer being paraphrased.

Nonetheless, it was also found from the incident diary analysis that looking for additional information was identified as more frequent expectation in Yahoo! Answers,

while looking for quick responses was more frequent one in WikiAnswers. With analysis of the interview data, the participants confirmed that they prefer to use Yahoo! Answers to get more personalized opinions or advice, whereas the WikiAnswers participants argued that they prefer the site because it provides quick and concise information to their question. These results may also support that in the diary data collection the social integrative needs were more frequent motivational factor in Yahoo! Answers, while personal integrative needs were more frequent motivational factor in WikiAnswers. In other words, while WikiAnswers users attempt to ask a question in order to satisfy their personal integrative needs through obtaining concise information for verifying their state of knowledge, or gaining insights into their personal values, Yahoo! Answers users may look for additional information through the question-answering interactions with other users based on an attempt of satisfying their social integrative needs, which indicates that Yahoo! Answers users may try to find social connections or conversations through asking and answering questions in Yahoo! Answers.

## **6.2. Sequential Mixed Method of Analysis**

This dissertation proposed mixed method analysis, employing sequentially the Internet-based survey, diary, and interviews to understand askers' contextual backgrounds of asking a question. This section includes the advantages and disadvantages of each research method employed in the sequential mixed methods in this dissertation. It also examines how these methods could complement one another for addressing the research questions in this dissertation.

First, the internet-based survey was conducted for the quantitative data analysis.

The main strength of the internet-based survey is that it helped to overview the general characteristics of online Q&A users, as well as questioning behaviors with emphasis of their motivation and expectation. Analysis of the survey data allowed the researcher to not only investigate the prominent motivational and expectation-based factors for asking a question, but also identify different representative groups based on the survey participants' responses, which helped to recruit appropriate participants for the other methods – diary and interviews in the dissertation. The literature review helped to identify several motivational and expectation-based factors that allowed the researcher to investigate a variety of users' unique contextual backgrounds in their information seeking behaviors in online Q&A environments.

However, a disadvantage of the Internet-based survey is that this technique is limited to explore in-depth meanings of why they to ask a question and how they employ their own personal evaluative criteria to judge information quality, as well as infer such dynamic changes in user motivation and expectation for asking a question in contexts of each unique problematic situations behind a questioning behavior. Therefore, analysis of the interview data provided a complement to the Internet-based survey on a focus of qualitative approach to explore and understand different incidents of users' questioning behaviors and their contexts in online Q&A services.

Second, the diary method was used before conducting the interviews with a group of the survey participants who represented different cases of user motivation and expectation. Whereas the findings of the Internet-based survey provided a big picture of online Q&A users' questioning behaviors with identifying a broad range of choice in



motivation and expectation for asking a question in online Q&A services, the diary method in this dissertation provided real-time contextual information about the participants' motivation and expectation for each time they asked a question in online Q&A services. Thus, the diary method provided a complement to the interviews in terms of collecting the recent data about asking a question in online Q&A services, which helped not to primarily rely on their recalls of previous experiences on asking a question in Yahoo! Answers and WikiAnswers.

Finally, the major strength of the interview method is to focus on qualitative analysis of online Q&A users' contexts with emphasis on their motivation and expectation for specific situations where they decided to ask a question in online Q&A services. Analysis of this method gave the researcher insights into a variety of contexts of the participants' information seeking behaviors through the question-answering interactions. In addition, the interview method complemented the Internet-based survey since it could be paired with the Internet-based survey in order to gain a better understanding of perceptions of the question-answering interactions in order to satisfy an asker's information needs through the participants' point of view (Cobb & Hagemaster, 1987). Another advantage of this method in this dissertation is that the interviews helped to identify the additional findings of how multiple motivations and/or expectations could be formulated at the same time when the participants ask a question in online Q&A services, which also helped to identified such dynamic relationships of motivations and expectations based on each participant' unique contextual situations within the processes of his or her information seeking in online Q&A environments.

As Sieber (1973) argues, integration of quantitative and qualitative approaches could be effective not only to develop the research design, but also to help data collection and analysis in this dissertation. Thus, this type of sequential mixed method that employs quantitative and qualitative research approaches with conducting the diary method collecting real-time data to overcome potential issues related with participants' inaccurate recall of their previous events would be recommended for those future studies that attempt to reveal people' contextual backgrounds and situations behind their information seeking behaviors in a variety of contexts.

### **6.3. Limitations of the Research**

Despite the findings of user motivations and expectations for asking a question within a unique context of online Q&A environments, the study also discovered several limitations. First, the study employed the uses and gratifications theory in order to investigate different an asker' needs behind asking a question. To do that, five motivational factors: (1) cognitive needs; (2) affective needs; (3) personal integrative needs; (4) social integrative needs; and (5) tension free needs. However, participants indicated that they were sometimes not sure how their need could be described within of these five needs. In other words, there could be another contextual situations in which people have different need for asking a question in online Q&A services.

Similarly, previous research studies in the field of LIS were examined to find six criteria that people employ to judge information quality in the study: (1) quick responses; (2) additional or alternative information; (3) accurate or complete information; (4) social or emotional supports; (5) verification of own belief or knowledge; and (6) trustworthy

sources. However, the participants had to choose one of items in these criteria to describe their expectation each time they ask a question in Yahoo! Answers or WikiAnswers. Even though the main objective of providing certain criteria was to develop a systemic standard to measure and investigate user motivations and expectations, it might be limited to explore different contextual perspectives of an asker's motivations and expectations. The qualitative analysis with phone interviews partially helped to identify the time when the participants had more than one motivational and/or expectation-based factor. But, it was still based on those preconditioned factors to determine motivations and expectations in the study.

This concern is related to the second limitation in the methodology used in the research study. As the above section discussed, the dissertation used mixed methods that sequentially employed the Internet based survey, diary, and interviews. This methodology was useful to identify general backgrounds of characteristics of the online Q&A users, as well as their motivations and expectations, followed by collecting and analyzing interviews with selected participants in order to explore deeper understandings of how and why they asked a question at different times to seek contextual information for an asker's unique situation. However, different sequential methods could be conducted to overcome the limitations of selecting motivational and expectation-based factors. For instance, it would be of value if diary data and interviews were employed first in order to discover a variety of characteristics of the participants' motivations and expectations, followed by identification of mutual themes of these factors in different times of asking a question among the participant. Then, it would be beneficial to recruit a

large number of online Q&A users for the Internet-based survey to perceive how these findings from the interviews could be generalized. This approach may be useful to substantiate additional motivations and expectations for asking a question in the context of online Q&A.

## CHAPTER 7: CONCLUSION

As online Q&A services have rapidly grown in popularity, these unique information resources have impacted people's information seeking behaviors in virtual environments. Yet, fundamental questions of user motivations and expectations for information seeking in online Q&A services still remain even though numerous previous research studies have focused on understanding various perspectives of the services.

The study was designed to understand contextual backgrounds of people's information seeking by human-to-human interactions, especially with the individuals who they do not know one another in the online environments. Thus, conceptualizing contexts and situations of users' information seeking behaviors within the context of online Q&A in the study was an endeavor that focuses on developing a more holistic framework of investigating users' information needs and information assessments through involving not only information contents, but also their unique situated contexts in information seeking.

The results of the study, which employed both quantitative and qualitative data collection and analysis, revealed a variety of insightful ideas of how online Q&A users are motivated to ask a question and what they do expect from other online Q&A users for their question. In this chapter, a discussion of implications proposed based on the findings in the study is presented, followed by future research studies to expand a scope of our understandings of user motivations behind asking a question, as well as expectations towards answers in the online Q&A environments.

### 7.1. Implications of the Study

The study focused on user motivations - why do people visit online Q&A services to ask a question, as well as expectations - what are the users' expectations with respect to the responses to their questions. The study employed the uses and gratification theory to identify five major needs for using online Q&A to ask a question and examined meta-analysis to develop six expectation-based variables that people use for evaluating information quality. These findings from the study provide a useful step in a number of areas of impact, including four implications discussed here, which would help to improve the experiences of the question-answering interactions in such an unique online environment: (1) question routing; (2) context sharing; (3) automated question-answering; and (4) answer quality.

First, question routing could be developed with a better understanding of user motivations and expectations identified in the study. As the original concept of question routing is referred to as "routing newly posted questions to potential answerers" (Li et al., 2011, p.2041), previous studies have focused on how to efficiently identifying subject experts for routing questions (see Bouguessa et al., 2008; Liu et al., 2005; Pal & Konstan 2010 for examples for identifying experts in the online Q&A environments). However, Pomerantz et al. (2003) also pointed out the potential developments for routing questions to not only another systems, but also another individual. Knowing contextual information of each asker's need and criteria to measure information quality would be beneficial to developing more comprehensive systems for routing questions to more suitable online Q&A service or subject experts based on understanding characteristics of his/her motivations and expectation for asking a question. For example, the general steps in the

model of question routing were investigated in order to examine factors that affect the triage process when routing questions to another reference service (Pomerantz et al., 2003). This study identified fifteen factors that may be important to take into account when routing questions within the triage process. This approach, however, did not consider users' unique contextual backgrounds of how and what they seek contextual information to address his or her unique situation. Thus, it would be valuable if asker's needs and expectations are added as factors affecting question routing systems that help to search either most appropriate online Q&A services and/or answerers who have expertise in an asker's topic.

Context sharing is that information seekers attempt to signal their information need to other people when they seek information (Hsieh et al., 2008). Thus, other people who may provide information would have a better understanding of a seeker's information needs. To apply this conception of context sharing into online Q&A services, Hsieh (2009) proposed 'social tags' to inform an asker's information need to potential answerers in online Q&A services. Nonetheless, social tags are not a new feature in the online environments. Previous research studies have focused on the strengths and weaknesses of social tags in wide range of topics within different research areas. The examples include music information retrieval with social tagging (Lamere, 2008), social tag prediction in social bookmarking (Heyman et al., 2008), and social tag in a search browser (Kammerer et al., 2009).

In the online Q&A environments, providing users' motivations and expectations identified in the study may be beneficial to develop the concept of social tags that provide

additional contextual information about why an asker asks a question what he/she looks for, as well as support answerers' exploratory search for unanswered questions. In other words, delivering additional information on an asker's motivations and expectations would let users answer a question accordingly through identifying both what an askers' need is in a unique contextual situation and how they tend to evaluate information quality (e.g., additional information, quick information, etc.) in online Q&A services.

Third, the findings related to online Q&A users' motivational and expectation-based factors in the study may be beneficial to develop automated question-answering systems, which help to identify appropriate answers and automatically provide them to a question. There have been a rich body of research focusing on developing better systems of question-answering (Dalmas et al., 2003; Hirschmann et al., 1999; Woods, 1968), including introducing different extractions to provide multiple answers (Light et al., 2001; Voorhees et al., 2002), and proposing the new prototypes of the system in order to measure effective automated question-answering (Hecht et al., 2012; Kim & Kim, 2008). Since one of the challenges to develop the automated question-answering systems lies in natural language processes that are required to improve comprehension of such systems, the findings from the study focusing on online Q&A users' contexts and situations behind asking a question may help to implement more semantic aspects of why people ask a specific question and what they expect from other Q&A users for the answers, and to identify suitable answers to a question.

Even though a focus of the study was users' questioning behaviors, this study also has implication for studying answer quality. A rich body of literature has focused on



evaluating answer quality in the field of online Q&A studies (Chen et al., 2010; Harper et al., 2008, Jeon et al., 2010; Shachaf & Rosenbaum, 2009; Shah and Pomerantz, 2010).

Yet, most studies heavily relied on a content of answer to judge to evaluate answer quality with little consideration of how an asker intends to evaluate information given to the question. It was found from literature review that people have different criteria to judge information quality, and it can be also assumed that these criteria of evaluating information would be different in each time when people have different contextual situations to seek information. Therefore, integrating users' expectation-based factors that present how they evaluate information quality into other criteria of evaluating answers quality (e.g., answer content, information sources, etc.) will support to develop an approach to evaluate information by examining not only how good information is delivered, but also how well an asker's expectation is met.

## **7.2. Suggestions for Future Research**

The study provided some exploratory results about askers' questioning behaviors with a focus on contextual backgrounds of what motivates people to *ask* a question to unknown people in order to seek information to satisfy their needs. In turn, they expect to receive responses to their question in online Q&A. Even though the findings from this dissertation may shed light on understandings of seeking contextual information to address users' unique situations, more research studies focusing on users' information seeking behaviors in such unique context of online Q&A should be continued. Further study is necessary in order to gain a more in-depth understanding of users' contextual information needs and evaluative criteria to judge answer quality for developing better

and effective question-answering processes. This indicates that the future studies focusing on askers' motivation or information needs behind asking a question in online Q&A should attempt to explore more diverse contextual backgrounds of their needs beyond the five motivational factors identified from the theoretical framework of uses and gratification in the study. Thus, the future studies may include not only askers' internalized motivational factors influencing online Q&A use for asking a question, but also other external influential factors that may affect their questioning behaviors.

Additionally, even though the study has mainly focused on askers' contextual backgrounds of seeking information to understand their motivations and expectations, it should be also focused on answerers' motivations and any other information sharing behaviors in a wide range of topics or areas in order to thoroughly examine different roles of users, motivations for seeking and sharing information, and strategies for providing contextual information and judging information quality in the context of online Q&A. Therefore, the future studies might consider developing more systematic approaches to synthesize online information behaviors of both askers and answerers in online Q&A services, which help to develop better question-answering interactions.

Human-centered research approaches on information seeking behavior have emphasized situations or contexts behind users' information needs and seeking in different information settings. Even though online Q&A services have become in popularity to seek and share information, the studies of an asker's information needs and seeking in context within online Q&A environments have been neglected. In the dissertation, it was found that an asker's questioning behavior in online Q&A services

could be initiated in various contexts. In other words, different needs for asking a question and different expectations towards answers did arise depending on an asker's such a unique contextual situations of information seeking in online Q&A services. Thus, an understanding of an asker's information needs and seeking in context could be a critical endeavor to gain a better understanding of information seeking behavior through question-answering interactions in online Q&A services.

Human driven online Q&A services such as Yahoo! Answers and WikiAnswers provide a unique environment where people are able to seek information through human-to-human interactions. These interactions allow them to seek different forms of information, ranging from factual information, to personal opinion or advice, to social supports or interactions without explicitly looking for information. This may indicate that contexts of information needs and people's information behavior have become complicated and could differ, depending on an asker's situation in online Q&A services. Since the dissertation focused on understanding an asker's different contexts by analyzing their motivation and expectation, there is hope that the findings may help to expand our understanding of contexts in people's information seeking behaviors in general online environments.

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### Appendix 1: Recruitment Email for a Survey

*Below is a recruitment email to be used for recruiting participants for a survey. It is understood that every channel will have a slightly different format, but the message will be the same.*

From : Seung Won Choi <swchoi@eden.rutger.edu>  
To : [RECIPIENT]  
Subject : Request for a survey on online question-answering usage

----- Message Text -----

Dear [RECIPIENT],

My name is Seung Won Choi, and I'm a PhD student in Dept. of Library & Information Science within The School of Communication & Information (SC&I). I'm conducting research on why people utilize online Q&A sites to ask questions for fulfilling their needs.

We are conducting about 150 surveys. I was wondering if I could send you our survey form. The survey will take about 25 to 30 minutes. Five of the survey participants will be randomly selected and received an electronic gift certificate of USD 25. If you withdraw prior to the end of the study and do not complete the study, you will not receive this opportunity.

If you agree, please reply to this email indicating your general availability for the next few days.

Sincerely,  
Seung Won Choi  
Dept. of Library & Information Science  
School of Communication & Information (SC&I)  
Rutgers, The State University of New Jersey

## Appendix 2: Recruitment Email for Diary Data and Interview

*Below is a recruitment email to be used for recruiting participants for an interview. It is understood that every channel will have a slightly different format, but the message will be the same.*

From : Seung Won Choi <swchoi@eden.rutger.edu>  
To : [RECIPIENT]  
Subject : Request for a survey on online question-answering usage

----- Message Text -----

Dear [RECIPIENT],

My name is Seung Won Choi, and I'm a PhD student in Dept. of Library & Information Science within The School of Communication & Information (SC&I). I'm conducting research on why people utilize online Q&A sites to ask questions for fulfilling their needs.

We are conducting about 20 phone interview. Before taking an interview, participants will be required to install Coagmento (<http://coagmento.org>), a plug-in for Firefox browser in order for them to keep a diary for their questioning behaviors, and to automatically collect their anonymized Web search information for 4 weeks.

I was wondering if I could ask you to install a plug-in on your Firefox browser and interview you at a time convenient to you. The interview will take about 45-60 minutes. If you agree, please reply to this email indicating your general availability for the next few days.

You will receive an electronic gift certificate of USD 40 for your participation. We will not use any identifying information about you while reporting the findings from this research.

Sincerely,

Seung Won Choi  
Dept. of Library & Information Science  
School of Communication & Information (SC&I)  
Rutgers, The State University of New Jersey

### Appendix 3: Survey Questionnaire

1. Your age:
2. Your Gender: 1) Female 2) Male
3. Occupation:
4. Your email:

This is only for sending you the electronic gift card of USD 25 if you win the drawing

5. Education:
  - 1) Less than high school
  - 2) High school graduate
  - 3) Some college (e.g., AA, BA, BS, etc.)
  - 4) Advanced degree (e.g., MA, MBA, PhD, etc.)
6. How often do you search the Web?
  - 1) Occasionally
  - 2) 1-3 searches per day
  - 3) 4-6 searches per day
  - 4) 7-10 searches per day
  - 5) More than 10 searches per day
7. How long have you been posting questions on [online Q&A site name]?
  - 1) Less than 1 month
  - 2) 1 - 6 months
  - 3) 6 - 12 months
  - 4) 13 - 24 months
  - 5) More than 24 months
8. How many questions have you asked total on [online Q&A site name]?
  - 1) 1-10 questions
  - 2) 11-20 questions
  - 3) 21-30 questions
  - 4) 31-40 questions

5) More than 40 questions

9. What kinds of questions do you ask on [online Q&A site name]?

	Never	Seldom	Sometimes	Often	Always
Fact-finding question (e.g., "How many sports and events are in the Olympics?")					
Opinion seeking question (e.g., "Can you recommend the best Italian restaurant in New York?")					
Advice seeking (e.g., "How can I take a payday loan on Christmas?")					
Self-expression (e.g., "Why are some people so negative when you are being positive?")					

10. Indicate the situations behind choosing [online Q&A site name] to ask a question over other information search tools/channels (e.g., a keyword search through Google, asking a question to people via phone, email, IM, etc.): (1=never a reason, 5=always a reason)

	1	2	3	4	5
Finding relevant information in immediate surroundings, society and the world					
Seeking advice or opinion for decision					
Learning; self-education through acquiring information					
Gaining a sense of security through knowledge					

11. Indicate the situations behind choosing [online Q&A site name] to ask a

question over other information search tools/channels (e.g., a keyword search through Google, asking a question to people via phone, email, IM, etc.):

(1=never a reason, 5=always a reason)

	1	2	3	4	5
Social/emotional support for personal issues					
Social/emotional support for someone (e.g., family, friends, etc.)'s issues					
Attainment on personal thought or idea					

12. Indicate the situations behind choosing [online Q&A site name] to ask a question over other information search tools/channels (e.g., a keyword search through Google, asking a question to people via phone, email, IM, etc.):

(1=never a reason, 5=always a reason)

	1	2	3	4	5
Finding support for one's own values					
Gaining insight into one's own life					
Experiencing empathy with others' problems					

13. Indicate the situations behind choosing [online Q&A site name] to ask a question over other information search tools/channels (e.g., a keyword search through Google, asking a question to people via phone, email, IM, etc.):

(1=never a reason, 5=always a reason)

	1	2	3	4	5
Identifying with others and gaining a sense of belonging					
Finding a basis for conversation and social interaction					
Having a substitute for real-life companionship					
Feeling connected with other people					

14. Indicate the situations behind choosing [online Q&A site name] to ask a question over other information search tools/channels (e.g., a keyword search through Google, asking a question to people via phone, email, IM, etc.):  
(1=never a reason, 5=always a reason)

	1	2	3	4	5
Having fun to ask a question to find information on Yahoo! Answers					
Filling time					
Emotional release					

15. Rate the importance of the following criteria that you expect to receive from answerers when you ask a question in [online Q&A site name]?  
(1 = the least important, and 5 = the most important)

	1	2	3	4	5
Looking for quick response					
Looking for additional/alternative information					
Looking for accurate/complete information					
Looking for social/emotional supports					
Looking for verification for own belief/knowledge					
Looking for Trustworthiness (the reliability or helpfulness of information)					

16. If you don't find a satisfactory answer to your question on [online Q&A site name], what else would you do in order to find a satisfactory answer? Check all that apply:

	1	2	3	4	5
Asking a new question on [online Q&A site name]					



Using different online Q&A services to find information					
Searching for information through search engines (e.g., Google)					
Contacting other people (e.g., friends, family) to ask a question					

17. Please write briefly (2-4 sentences) about your experiences asking questions

within [online Q&A site name] mentioned here as well as any others. In this response, please include (1) why you used [online Q&A site name] to ask a question instead of a search engine (e.g., Google) (2) how your expectations of what types of answers you might receive are different within [online Q&A site name] versus using a search engine (e.g., Google)