

Chapter 1

Introduction

Abstract In this introductory chapter, we present the concept of social information seeking (SIS). SIS covers situations where people use their social connections to seek, share, and process information. The chapter provides several definitions that further explain and situate this notion. It then provides a brief overview of some of the activities and applications that employ SIS. The chapter introduces several concepts that relate to SIS, such as information seeking/retrieval/behavior, social media/networking, social search, question-answering, and collaborative information seeking (CIS). It uses the interconnections among these concepts to set the stage for studying and addressing various topics in SIS. The chapter concludes by describing the organization of the rest of the book.

1.1 Introduction

Social information seeking (SIS), sometimes referred to as *social search* or *social information retrieval*, is a relatively new area of study surrounding the seeking and acquiring of information from social spaces on the Internet. Examples include asking a question to a crowd on Yahoo! Answers¹ or Stack Overflow,² taking an informal poll about a dress you are thinking of wearing using Facebook,³ and sharing recipes through Pinterest.⁴

As Evans and Chi [5] put it, SIS, or in their words, *social search*, is a term that is “used to describe search acts that make use of social interactions with others. These inter-actions may be explicit or implicit, co-located or remote, synchronous or asynchronous” [5, p. 2]. Social search, according to Chi [4], can be broken down into two different categories: social answering systems and social feedback systems. Social answering systems satisfy users’ information needs with answers that are provided by other users. Personal social networks may be leveraged in these systems, and answers may be provided by people with varying levels of

¹<https://answers.yahoo.com>.

²<http://stackoverflow.com>.

³<https://www.facebook.com>.

⁴<https://www.pinterest.com>.

expertise. Yahoo! Answers and Facebook are both examples of social answering systems. Social feedback systems, on the other hand, rank results and information according to feedback from users, offering them to users in order of their ratings. Social bookmarking services fall under this category of social search systems. SIS covers a range of several different types of searches and services, each of which incorporates social interaction in some form.

Figure 1.1 depicts a set of services and applications, primarily within Web 2.0 framework, that promote and support SIS. This “promote and support” idea is important to consider here because few systems were created to explicitly cater to SIS. What we find, instead, is that people use their familiar social media and social

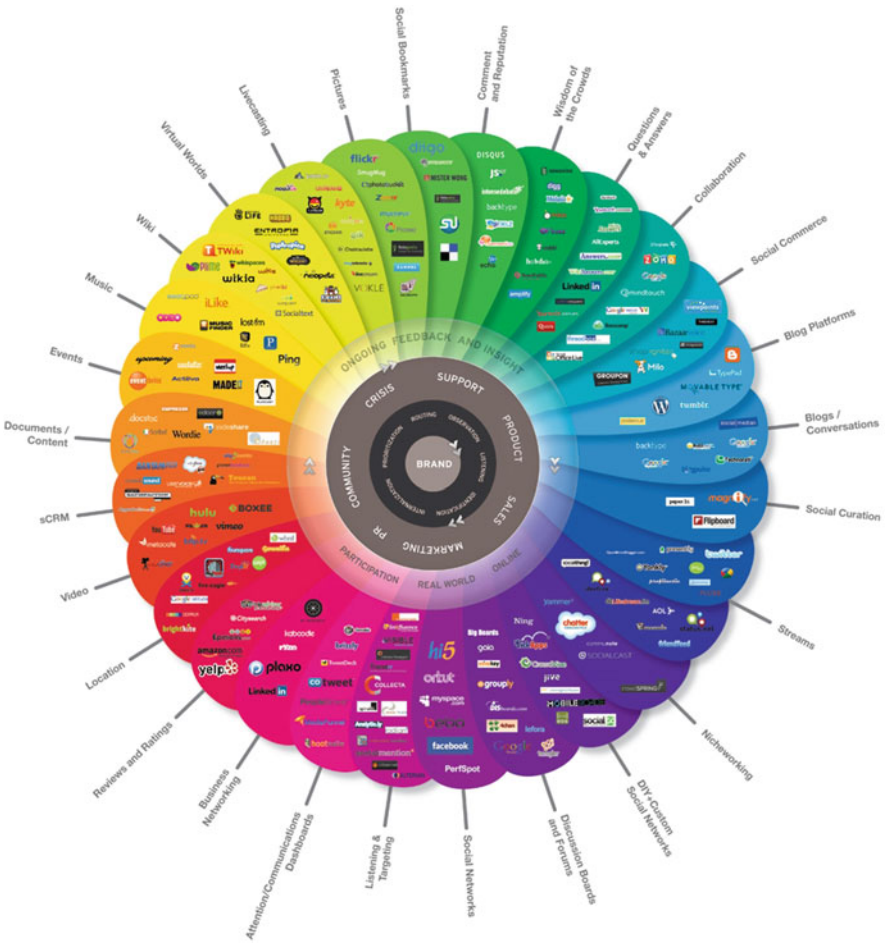


Fig. 1.1 Various social media/networking services that promote and support social information seeking. Source: Wikimedia, <https://upload.wikimedia.org/wikipedia/commons/7/7c/Conversationprism.jpeg>

networking platforms to carry out informational activities, thus engaging in SIS via common channels.

1.2 Defining and Situating SIS

We'll see later in this book that there may be a lack of common understanding or even consensus on the definition of SIS. But at this point, it's important that we at least lay down some groundwork and present some terminology. First, we'll form a definition of SIS; then we'll provide some context to situate it.

SIS describes the process through which users locate and share information in participatory online forums, such as social media platforms and question-answer Websites. According to Shah et al. [14], these sites “encourage and thrive on communities built around information exchange, introducing a social aspect to information seeking” (p. 205). Throughout pertinent literature, SIS can also be described as *social Q&A*, *social search*, or *social information retrieval*. In this book, we define social information seeking (SIS) as a field of research that involves studying situations, motivations, and methods for people seeking and sharing information in participatory online social sites, such as Yahoo! Answers, WikiAnswers,⁵ and Twitter,⁶ as well as designing, building, and evaluating systems for supporting such activities. From time to time, we will also find ourselves including “collaboration” as an aspect of these studies and systems because, as we will see in Chap. 7, it's often impossible to separate collaboration from a social system, and vice versa.

Let's try to understand SIS in light of related and more established domains of scholarly inquiry. Figure 1.2 provides a schematic view of this understanding.

Here, we can see that SIS is somewhere in the intersection of information seeking and social media/networking domains. However, since information seeking is a subset of information behavior and a superset of information retrieval (see Chap. 2), and since it becomes very difficult to talk about “social” without talking about “collaboration” (see Chap. 7), we have to consider those aspects in this big picture as well. Let's take a closer look.

SIS is but a piece of a much larger overall process. The domain falls under the broader topic of information seeking, which in turn is nested inside human information behavior. Information seeking, including SIS, is the behavior of seeking out specific information to fulfill some sort of information need [15]. The required information may be sought from any number of sources including libraries, print materials, Internet sources, and other people. Human information behavior encompasses information seeking, as well as all other information-related behaviors in which people engage. Such behaviors include both passively and actively seeking out information as well as using acquired information.

⁵<http://www.answers.com>.

⁶<https://twitter.com>.

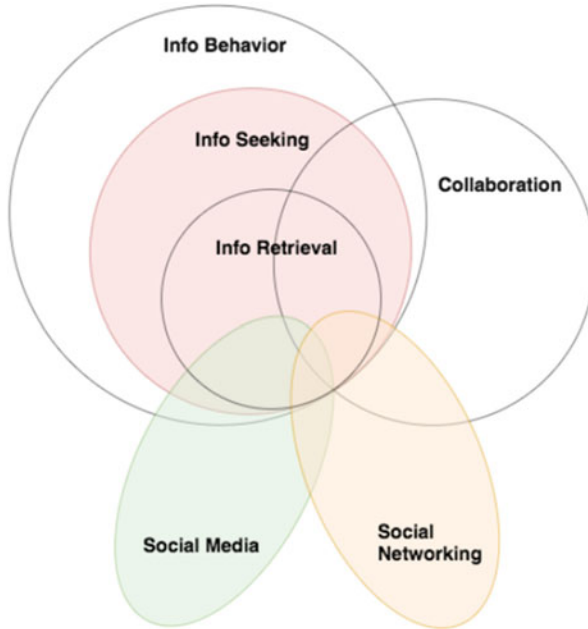


Fig. 1.2 A schematic view of social information seeking (SIS)

Explorations of SIS are also necessarily entwined with those of social media, as the strength of the former rests on the latter. As mentioned above, social media platforms such as Facebook, Twitter, message boards, and question-answer (Q&A) Websites are the tools with which SIS is performed. The importance of such platforms and systems lies in their flexibility. While search engines are designed for finding and providing information, they offer only objective information based on the query given, which is limiting. Social media, however, allows for questions to be asked in natural language, not in computer queries; the information need can be stated as a full question instead of reconfigured into a few keywords. Additionally, social media platforms leave room for subjective answers that are more difficult to come by through a search engine, such as opinions and recommendations. Further, they permit answers to be personalized or colored by the user and their social network's knowledge. Thus, answers can be tailored to the person asking the question [8].

One specific form that SIS can take is social/community Q&A, a community-based question-answer service. One user poses a question publicly, and those who are able and willing respond with answers. This, in the words of Shah et al. [14], “enables people to collaborate by sharing and distributing information among fellow users and by making the entire process and product publicly available” (p. 206). The information seeking process is made social by linking the seeker with those who can potentially satisfy their information need. Social Q&A is not only an

example of SIS but also a component of collaborative information seeking. Related to SIS, collaborative information seeking is the idea that information seeking is often done jointly by multiple people filling multiple roles in the overall process [13]. In the case of social Q&A, and SIS more broadly, collaboration takes place between the person with the information need and those whom they contact through social information platforms, whether those people be strangers using the same Website or members of the asker's social network. These individuals fill different roles but ultimately join together to provide and acquire information and fulfill the information need.

1.3 SIS Activities and Applications

Let us now consider some of the practical applications and situations where we see SIS. Many of these should be familiar, and yet, we often don't think about them as SIS activities. By "activities," we mean acts and tasks that involve information seeking, sharing, and sense-making.

As the popularity of question-answer sites, social media, and other online social platforms has increased, so have the methods and practices used to study the information seeking exchanges that occur through these channels. Three broad categories of digital service include digital reference services, expert services, and social Q&A [11]. Specific studies within SIS research have examined the activities of both specific sites and specific user groups. For example, Adamic et al. [1] provide a comprehensive analysis of the knowledge exchange communities that form and thrive on Yahoo! Answers, while Savolainen [10] examines the interactions of travel planners across multiple platforms. Other areas of study involve virtual reference services, such as instant messaging interactions between librarians and library patrons, and *Ask-A* services powered by organizations other than libraries.

Throughout these studies, scholars generally seek to discover the motivations and methods employed by information seeking users. In their study of SIS on Facebook, for example, Wise et al. [16] contrast passive social browsing—such as scrolling through newsfeeds without specific information needs—with extractive social searching, in which Facebook users actively seek information from specific individuals or pages. And beyond site-specific findings, a few general theoretical frameworks are used by SIS researchers. O'Brien et al. [9], for example, use the "uses and gratification theory" (UGT) to examine how online users select information to share with others. Many scholars focus either on a platform's content or a conglomeration of users. Cha et al. [3] focus specifically on Twitter and the ways in which certain users are considered influential. Liu et al. [7], on the other hand, take a broader approach to SIS by studying how question-answer sites affect students' discussion, behaviors, and learning performance.

As an increasing number of information exchanges occur on platforms such as question-answer sites, social media sites, and virtual reference providers, research

conducted in the SIS field becomes vital to understanding the motivations, methods, practices, and results that relate to social information seeking behavior. Scholars from various disciplines—including information science, psychology, and computer science—continue to study new and emerging SIS trends, which include the ways in which authority is established through social media interactions, the methods employed by users to elicit friendly and/or trusted responses, and how information seeking can satisfy social needs and learning agendas. Databases such as Academic Search Complete,⁷ ScienceDirect,⁸ SCOPUS,⁹ and Library, Information Science & Technology Abstracts¹⁰ index a wealth of materials on these subjects.

1.4 Relation to CIS and Previous Works

Given that there are several works on CIS, including my own books on the topic published by Springer, one wonders whether SIS is different enough from CIS to warrant a whole new book. Let me attempt to answer that—what may seem like just a rhetoric at this point.

There is a fundamental difference between a social and a collaborative tie. For a collaboration to take place, the participants need to have a certain level of familiarity and trust with one another. For a social connection, this is not a requirement. This may not sound like a huge difference in the way these notions are constructed, but it has significant implications. For instance, due to its requirements or expectations, a *true* collaboration is limited in its scope with respect to the size of the group and the nature of the project. It's highly unimaginable to see a thousand people working together to write a report on climate change with a joint goal of achieving one outcome of mutually beneficial nature. On the other hand, it is completely plausible (and happens often) that an individual asks his dozen friends through Facebook, his hundred followers through Twitter, and thousands or millions of strangers through an online forum to help with a report on climate change he is writing.

Collaboration requires a certain balance in roles, responsibilities, and benefits, whereas a social connection for working on information projects does not.

The C5 Model of collaboration that I presented in a book on CIS [12] and summarize in Chap.6 of this book can help us see how strict the notion of collaboration could be. But once we start loosening the requirements for each of the five layers, we open up a whole new set of possibilities for people working with each other in small and big groups, producing and consuming information, and exchanging knowledge at an unprecedented scale and speed.

⁷<https://www.ebscohost.com/academic/academic-search-complete>.

⁸<http://www.sciencedirect.com>.

⁹<https://www.scopus.com>.

¹⁰<https://www.ebscohost.com/academic/library-information-science-and-technology-abstracts>.

This creates new opportunities and challenges. It now allows the well-established theories and practices of information seeking domain to mix with newer and more dynamic systems and services of social media. Through this amalgamation, we can study and support emerging forms of information behaviors that include people seeking and exchanging information through social media and crowdsourcing services. This phenomenon also raises new challenges to meet. For instance, learners (students and professionals) are increasingly using information generated by nonexperts without questioning its authenticity, validity, or quality. While this could be damaging at a personal level, the same behavior also causes large-scale societal problems such as those raised by “fake news” [2, 6].

The problems, challenges, and opportunities are quite different from what scholars (including myself) have covered while writing about CIS.

Of course, there are important overlaps with topics of CIS and computer-mediated communication (CMC), and wherever needed, these overlaps and differences are called out in this book. Chapter 6 provides an overview of CIS, primarily based on my previous book [12], but also adding and updating some material. Chapter 7 offers a unique overview of what combining SIS and CIS could look like. Since CMC is a topic on the periphery for this book, it is covered as an appendix.

1.5 Organization of This Book

In this chapter we introduced social information seeking (SIS) as an exciting and emerging domain of research and development. As we learned, there is much more to SIS than meets the eye. Specifically, we need to consider several interconnecting research domains and scholarly aspects. And that’s how the rest of this book is organized.

The larger concept of information behavior covers all kinds of activities and contexts where people are interacting with information. This includes both active and passive interactions. In other words, when you *Google*¹¹ something, that’s part of your information behavior, and so is the time when you accidentally saw a poster at a mall and discovered that the new Star Wars movie features your favorite Wookiee’s comeback.¹² But then there are specific kinds of information interactions that involve realizing the need to find information, and actively looking for it. That’s a subset of information behavior that we call information seeking. In Chap. 2, we will review many models and theories that discuss this concept using different contexts and populations. Many of these models believe that the act of seeking information starts when a person recognizes a gap in their knowledge. They also acknowledge that seeking information does not always lead to finding information.

¹¹<https://www.google.com>.

¹²More on Wookiees can be discovered at this excellent *Wookieepedia* site: <http://starwars.wikia.com/wiki/Wookiee>.

There is a subset of information seeking, called information retrieval, where the assumption is that the information being sought exists and the challenge is to make sure it is retrieved. Therein lies a fundamental difference between information seeking and information retrieval: the former focuses on the person looking for information without assuming that the *right* kind of information exists, whereas the latter focuses on the system to make sure the information is found.

We will then turn our attention to the social side of human behavior. You'll find that this is not a new concept. Yes, we have always been social, even without Facebook or the Web. Being social and wanting to be a part of a community can perhaps be thought of as why and how we, the human species, survived and flourished over thousands of years. And now the advent of the Web, and specifically the Web 2.0, has allowed us to practice those aspects of our behavior at a speed and a scale not possible before. In Chap. 3, we will look at two important and connected domains of scholarly inquiry: social media and social networking. We will see that these services are more than just some novelty applications for teenagers. They are being used to not only share and discover information but also to produce, reproduce, and augment existing information. This, in a way, is democracy's next evolution, where anyone and everyone who can connect to the Web could participate in, contribute to, and shape our collective thinking.

Next, we will ask what happens if we combine those information seeking and social media/networking aspects of human behavior. And that's how we develop the second part of this book, which looks at the social dimension of information seeking. Chapter 4 will be dedicated to a very specific kind of method that people use while looking for information from their social/community-based ties. Not surprisingly, when people use others to seek information, they are not throwing out a bunch of keywords as they would with a search engine (and thank goodness for that!); they are instead asking questions. This particular chapter will categorize question-answering (Q&A) activities into online expert-based, community-driven, collaborative, and social spaces. There are several services that cater to one of these methods for Q&A. Interestingly, popular "social" platforms are often not designed with Q&A in mind. For example, Twitter is a microblogging service, but people use it for asking questions of their friends and followers.

We will expand our notion of how people explore and exploit their social connections to seek information beyond Q&A in Chap. 5, calling these behaviors social search. In addition to using social connections to look for information, this notion also includes searching within socially constructed information. As we review important theories, models, and practices, we will realize that we couldn't simply talk about people seeking information *through* other people without talking about how they do the same *with* other people. That latter case transitions us into the third part of this book.

The situation in which people seek information *with* other people is quite appealing since it incorporates another fundamental aspect of human nature: collaboration. In Chap. 6 we will see that there are many situations that either call for or could benefit from multiple people working together in seeking, sharing, and making sense of information. However, research in the fields of information seeking

and information retrieval has disproportionately considered information seeking to be a solitary activity. What we see in Chap. 2 should be a proof that most, if not all, models of information seeking are designed around the image of a single person looking for information. To overcome this limitation, we will see how we could incorporate a collaborative dimension into information seeking by either extending existing models and methods to include that aspect or by building new methods from the ground up with collaboration in mind.

Of course, this dimension of “collaboration” is not that easy to separate from the “social” dimension of information seeking behavior. And that’s why, in Chap. 7, we will look at both of those dimensions together in information seeking situations. One of the interesting things we will discover from this exercise is that often a multi-person activity starts with a social connection and then becomes collaborative, and vice versa. In other words, a collaborative project may end up exhibiting some social characteristics even though they were neither planned nor required.

Finally, in Chap. 8 we will revisit the idea of SIS in the context of all that is covered thus far (information seeking/retrieval/behavior, social media/networking, Q&A, social search, collaborative and social aspects of information seeking) and how that relates to research and practice. Specifically, we will see some of the most common research methodologies and evaluation strategies used for studying SIS users and systems. We will also see examples of main classes of applications that relate to SIS.

The book will finish with the conclusion presented in Chap. 9. In this chapter, we will summarize what we learned from all the preceding chapters, and then commence to synthesize those lessons. We’ll accomplish this by presenting two different frameworks. After that, a list of theoretical and practical challenges and opportunities will be provided. This should help students, scholars, and anyone who wants to study and contribute to SIS and related areas.

It is important to note that almost every topic covered in this book could merit its own volume, but we are trying to present each in a single chapter. This means that we may not provide a comprehensive treatment of these topics. But we hope that the following chapters will present enough introductory materials with pointers toward further explorations for interested parties to pursue future inquiries.

References

1. Adamic, L.A., Zhang, J., Bakshy, E., Ackerman, M.S.: Knowledge sharing and yahoo answers. In: Proceedings of the 17th International Conference on World Wide Web - WWW '08, p. 665. ACM Press, New York (2008)
2. Allcott, H., Gentzkow, M.: Social Media and Fake News in the 2016 Election (No. w23089). Technical report, National Bureau of Economic Research (2017)
3. Cha, M., Gummadi, K.P., Haddadi, H., Benevenuto, F.: Measuring user influence in Twitter: the million follower fallacy. In: ICWSM 2010 - Proceedings of the 4th International AAI Conference on Weblogs and Social Media, pp. 10–17 (2010)
4. Chi, E.H.: Information seeking can be social. *Computer* **42**(3), 42–46 (2009)

5. Evans, B.M., Chi, E.H.: An elaborated model of social search. *Inf. Process. Manage.* **46**(6), 656–678 (2009)
6. Kahan, D.: The psychology of fake news. In: AAAS Annual Meeting (2017)
7. Liu, E.Z.-F., Cheng, S.S., Chen, S.Y., Chen, B.-I.: The impact of Q&A forums' level of elaboration on students' learning. *Procedia - Soc. Behav. Sci.* **64**, 604–608 (2012)
8. Morris, M.R., Teevan, J., Panovich, K.: What do people ask their social networks, and why? A survey study of status message Q&A behavior. In: *Proceedings of ACM SIGCHI Conference on Human Factors in Computing Systems*, Atlanta, GA (2010)
9. O'Brien, H.L., Freund, L., Westman, S.: What motivates the online news browser? News items selection in a social information seeking scenario. *Inf. Res.* **19**(3), Paper 634 (2014). Retrieved from <http://InformationR.net/ir/19-3/paper634.html>
10. Savolainen, R.: The use of rhetorical strategies in Q&A discussion. *J. Doc.* **70**(1), 93–118 (2014)
11. Shah, C.: Collaborative information seeking: a literature review. *Advances in Librarianship* **32**, 3–33 (2010)
12. Shah, C.: *Collaborative Information Seeking: The Art and Science of Making the Whole Greater than the Sum of All*. Information Retrieval Series. Springer, Berlin (2012)
13. Shah, C., Capra, R., Hansen, P.: Collaborative information seeking [Guest editors' introduction]. *Computer* **47**(3), 22–25 (2014)
14. Shah, C., Oh, J.S., Oh, S.: Research agenda for social Q&A. *Libr. Inf. Sci. Res.* **31**(4), 205–209 (2009)
15. Wilson, T.D.: Human information behavior. *Inf. Sci.* **3**(2), 49–55 (2000)
16. Wise, K., Alhabash, S., Park, H.: Emotional responses during social information seeking on Facebook. *Cyberpsychol. Behav. Soc. Netw.* **13**(5), 555–562 (2010)

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Shah, C.

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