Motivations for Online Knowledge Sharing

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Abstract and Keywords

Online knowledge sharing systems (KSS) allow individuals to share and retrieve information across geographic and temporal boundaries. Generally, individuals' use of these information repositories is voluntary, so scholars have examined the motivating factors underlying the use of KSS. Integrating research from diverse disciplines, this chapter provides a comprehensive review of extant research in this area. To begin, the chapter describes the review's framework and defines key concepts. It then broadly categorizes motivations for knowledge sharing as self- or other-oriented and summarizes research on the primary motivations within each category. Subsequently, the chapter reviews several contextual factors that modify the relationships between motivations and online knowledge sharing. To close, the chapter reflects on the review material, generating several areas for future research.

Keywords: knowledge contributing, knowledge collecting, motivations, online knowledge sharing systems, public goods theory

Introduction

ONLINE knowledge sharing systems (KSS) greatly reduce the cost and effort of organizing, finding, and sharing knowledge and social connections, particularly when the content and users are geographically and temporally dispersed. Through these systems, individuals can make their privately held knowledge publicly available, and large groups can more easily share knowledge to support collective action (Bimber, Flanagin, & Stohl, 2005). Despite these advantages, there is often little obvious reward given to those who contribute knowledge; thus, individuals must be motivated by other factors. Extant research on motivations for online knowledge sharing is widely dispersed and can be found in a variety of disciplines. Moreover, this body of research has generated interesting—but at times contradictory or problematic—findings. Accordingly, this review synthesizes and organizes relevant theory and research on motivations for online knowledge sharing.

The first section of this review provides its framework. The following two sections categorize motivations for online knowledge sharing by their source or stimulus, moving from more self-oriented motivations to more other-oriented motivations. The subsequent section summarizes three factors (self-efficacy, trust, and venue) that are not direct motivators but may provide preconditions or a moderating context. Finally, the review concludes with suggestions for future research.

(p. 574) Framework

Distinctions

Five distinctions bound this review: the first three explain what is included and excluded, and the final two define fundamental concepts. First, we focus on research and theory on more general Internet (and intranet) sites whereby individuals can both *collect* and *contribute* content. As a result, we do not consider reference databases or data repositories from which users search and retrieve formally-structured information. Second, we do not consider *technical aspects* of knowledge sharing, such as system features or affordances or user search strategies, except as they are significant influences on the motivations for knowledge sharing. Third, we distinguish among the *components* of the knowledge-seeking and utilization process (Case & Given, 2016; Rice, McCreadie, & Chang, 2001), which includes (a) *seeking* (the process of browsing, accessing, or searching), (b) *sharing* (including direct, generalized, or indirect reciprocity, as exchanging tends to imply more direct reciprocity or even a dyadic transaction), (c) *collecting* (the process of receiving or actively obtaining knowledge, which may include posting requests or questions), (d) *contributing* (the process of providing knowledge, either through generalized posting or providing responses to specific requests or questions), (e) *evaluating* (for accuracy, credibility, or utility), and (f) *utilizing* (or applying) that knowledge. Here, we focus on sharing as the general process, and collecting and contributing when they are specifically referenced. Fourth, although access to information can refer to knowledge, technology, communication, and data or facts, we use the general term *knowledge* to emphasize the potential value of shared information.

Fifth, we group individuals' motivations to contribute to online KSS into two broad categories: *self-focused* and *other-focused* motivations. Based on the source or stimulus of the motivation, this distinction acknowledges the inherent and crucial social dilemma in KSS: the tension between individual costs and benefits and collective costs and benefits (Heinz & Rice, 2009). When people are driven to contribute by self-focused motivations, they conceive of themselves as unique individuals, acting primarily in their self-interest, who obtain a personal benefit as a result of contributing. In contrast, individuals driven by other-focused motivations conceive of themselves as members of a social context, whose actions are likely to affect or influence others in some way. Moreover, their contributions may be judged or influenced by a group identity or compared to others' contributions or group norms. This distinction is somewhat similar to De Dreu and Nauta's (2009) conceptualization of self-interest and other-orientation, but our use refers to the individual or so-

cial source or stimulus of the motivation. Self- and other-focused motivations may seem redundant with the more common distinction between intrinsic and extrinsic motivations (discussed later in the chapter), but they are conceptually separate. Intrinsic and extrinsic motivations hinge on the locus of control: intrinsically motivated individuals feel in control of their actions, whereas extrinsically motivated individuals respond to (p. 575) an external force. In contrast, self- and other-focused motivations are differentiated by individuals' perceptions of themselves in relation to others.

Having explained the five distinctions guiding this review, the following section provides a brief overview of public goods theory, which is foundational to an understanding of online knowledge sharing, and briefly introduces several common forms of KSS.

Public Goods and Knowledge Sharing Systems

Using KSS, individuals can collaboratively produce a public good or a good that is both non-rival (i.e., one individual's use of the system or its knowledge does not affect another's use of it) and non-excludable (i.e., all members of the collective audience can benefit from the resource, regardless of their contributions to it). Because of these defining characteristics, contribution to online repositories is discretionary: individuals are not required to contribute their knowledge to the pool, and they can benefit from the pool without contributing to it (Connolly & Thorn, 1990). Consequently, the rational individual will act as a *free rider* or a *social loafer*; that is, he or she will benefit from others' contributions to the pool but withhold his or her private knowledge (Fulk, Flanagin, Kalman, Monge, & Ryan, 1996). However, if each individual acted in his or her own interest, online repositories would be degraded and eventually destroyed (Hardin, 1968). Thus, the decision to contribute to online repositories represents a *social dilemma*, or a situation in which the interest of the individual is in opposition to the interest of the collective (Dawes, 1980). Nevertheless, some individuals do share their private knowledge; in doing so, they are engaging in *collective action*, an action undertaken by two or more people that results in the production of a *public good* (Marwell & Oliver, 1993).

Individuals can share knowledge through a diverse array of online KSS, and research in this area refers to a dizzying number of systems. In the hopes of providing clarity, we briefly define three frequently referenced KSS—online repositories, communities or networks of practice, and social network sites—and characterize them by their level of *connectivity* and *communality* (Fulk, Flanagin, Kalman, Monge, & Ryan, 1996). *Connectivity* refers to the degree to which individuals are directly linked to one another in the network, whereas *communality* describes the extent to which individuals jointly hold, maintain, and benefit from the knowledge provided in the repository.

Online repositories are information resources developed through individuals' contributions, transmitted over a digital network, and made accessible for participants' use (Cheshire & Antin, 2008). They emphasize the contributing and collecting of knowledge through the filtering and sharing of content, thus featuring communality instead of connectivity.

Communities of practice involve the exchange of knowledge about a shared practice, but their members typically engage in face-to-face communication and have strong relational ties with one another (Brown & Duguid, 2000; Wenger, 1998). Both researchers and practitioners have noted that communities of practice can arise in virtual communities and have identified several ways that social media can help facilitate (p. 576) communities of practice (Barab, 2003; Hoadley, 2012; Johnson, 2001). In the online context, communities of practice are sometimes also referred to as problem-solving virtual communities (Yu, Jiang, & Chan, 2007) or electronic *networks of practice* (Deng & Poole, 2011; Wasko & Teigland, 2004). Linked by weak ties, these individuals may never meet face-to-face but are able to exchange knowledge about their shared, specific topic through the network. Like online repositories, both communities and networks of practice are characterized by high levels of communality. However, they are also marked by individuals' mutual engagement with one another (Wasko & Teigland, 2004), and therefore exhibit higher levels of connectivity than online repositories generally do. For instance, wikis not only support the sharing, revising, and pooling of both explicit and tacit knowledge and the development of knowledge bases, but they also support conversations about that knowledge, including revealing revision histories as a kind of threaded conversation (Arazy & Gellatly, 2012).

Web 2.0 and social media are becoming pervasive contexts for diverse kinds of information sharing for a wide range of purposes (Ellison, Gibbs, & Weber, 2015; Ostauyi, 2013). *Social network sites* (SNS) are Web-based services through which individuals create a public or semi-public profile and maintain connections with other users of the system (Ellison & boyd, 2014). Because of their emphasis on social interaction, SNS can promote very high levels of connectivity. Additionally, SNS notifications and postings support ambient awareness among users, increasing knowledge sharing (Leonardi & Meyer, 2015). Some systems (such as Facebook) enable group and network members to easily collect and contribute knowledge, while others (such as Twitter) allow for rapid contribution to large numbers of unknown followers (Osatuyi, 2013). However, users of some SNS can mask their personal information and interactions through privacy settings, resulting in lower levels of communality than online repositories.

As the preceding paragraphs demonstrate, a wide variety of KSS exist, and these variations are described by a multitude of specific terms. Khansa, Ma, Liginlal, and Kim (2015) provide an excellent, succinct overview of virtual knowledge collaboration sites, which consist of organizational knowledge management systems, online professional communities, Wikipedia and other open-source sharing communities, customer-based firm-hosted online communities, and online question and answer communities. Similarly, Phang, Kankanhalli, and Huang (2014) present a theoretical model of participation in online policy deliberation forums, which includes knowledge sharing, emotional support, interest- or hobby-oriented, product consumption, review, and citizen science project sites.

Self-Oriented Motivations

This section explores the more self-oriented motivations for online knowledge sharing, including enjoyment and entertainment, altruism, expertise, feedback, reputation, (p. 577) incentives, and expected benefits and costs. To allow for a better understanding of these motivations, we first provide an overview of three relevant theoretical perspectives—motivational theories, transactive memory theory, and social exchange theory.

Many self-oriented motivations can be categorized as *intrinsic* or *extrinsic* motivations. As a result, many studies (e.g., Bock, Zmud, Kim, & Lee, 2005; Cho, Chen, & Chung, 2010; Yang & Lai, 2010) are framed by *motivational theories* of intrinsic and extrinsic motivation, such as self-determination theory (SDT; Deci & Ryan, 2013). According to this perspective, intrinsically motivated individuals engage in an activity for the inherent satisfaction it provides rather than for an external reward (Ryan & Deci, 2000); in other words, the activity "is its own reward" (Deci & Ryan, 2013, p. 88). Consequently, intrinsically motivated behavior produces positive feelings, such as enjoyment, happiness, enthusiasm, and entertainment (Deci & Ryan, 1985). Individuals engaging in intrinsically motivated behavior also experience feelings of competence (i.e., the ability to deal effectively with one's surroundings) and self-determination (i.e., autonomy or control of one's actions), as well as feelings of creativity, flexibility, and spontaneity (Deci & Ryan, 1985). This theoretical perspective is relevant to many self-oriented motivations; for example, those who engage in online knowledge sharing because it is enjoyable and entertaining are intrinsically motivated. Similarly, individuals who altruistically share knowledge are driven by intrinsic motivation.

Extrinsically motivated individuals, on the other hand, engage in an activity to satisfy external pressures or to earn a tangible reward (Ryan & Deci, 2000). For these individuals, the desired goal or reward is distinct from the activity itself, and their behavior is often controlled by external contingencies, such as rewards sought or punishments avoided (Deci & Ryan, 2013). As a result, individuals engaging in extrinsically motivated behavior feel pressure and tension, and they may also experience feelings of anxiety and lower self-esteem (Deci & Ryan, 1985). Several self-oriented motivations are extrinsically motivated; for instance, individuals who engage in online knowledge sharing to enhance their reputation or to earn rewards are extrinsically motivated.

Although many self-oriented motivations are explained by motivational theories, others are better explained by *transactive memory theory*, which provides a cognitive and social basis for understanding why members contribute to and benefit from KSS, especially across interdependent groups (Huang, Barbour, Su, & Contractor, 2013). This perspective argues that people working together—typically in organizations and teams—need to be able to recognize members' expertise and retrieve information from and provide information to the relevant expert. In other words, group members do not need to personally remember others' expert knowledge, but they must be aware of others' expertise and able to collect and contribute knowledge. In doing so, members develop a transactive memory system. Transactive memory theory explains several self-oriented motivations, such as the

demonstration of one's expertise or the enhancement of one's reputation through online knowledge sharing, but it is also relevant to other-oriented motivations, which are discussed in a subsequent section.

Lastly, *social exchange theory* (Blau, 1964) can provide a better understanding of self-oriented motivations. This perspective portrays individuals as rational beings and (p. 578) argues that their behavior is based on cost-benefit analyses. Blau (1964) asserts that individuals are driven to maximize their personal benefits while minimizing their personal costs. Accordingly, they will only engage in an activity if the benefits of doing so outweigh any associated costs. Following this logic, individuals' decision to contribute to online repositories is based on the expected costs and benefits of contributing.

Having outlined three theoretical perspectives that undergird self-oriented motivations, in general, we now transition to a discussion of specific motivations found in the literature on online knowledge sharing.

Enjoyment and Entertainment

For some individuals, online knowledge sharing is enjoyable and entertaining and thus considered an intrinsically motivated behavior. For example, users of social network sites identified *enjoyment* (Lin & Lu, 2011), as well as *fun and entertainment* (Quan-Haase & Young, 2010), as primary motivations to share knowledge. Participants in online discussion forums (Wasko & Faraj, 2000; Yang, Li, Tan, & Teo, 2007) and online travel communities (Wang & Fesenmaier, 2003) also cited feelings of enjoyment as their motivation to contribute. Similarly, Wikipedia contributors are primarily motivated by the fun (Nov, 2007) and enjoyment (Hoisl, Aigner, & Miksch, 2007; Moore & Serva, 2007; Schroer & Hertel, 2009) they derive from contributing. Although many studies have found feelings of enjoyment and entertainment to motivate online knowledge contribution, others have not. For example, a study of Wikipedia contributors (Yang & Lai, 2010) found that enjoyment was not a significant predictor of self-reported knowledge sharing frequency. Similarly, members of an online photo sharing community with a longer tenure were not motivated by enjoyment to post or tag photos, though newer members were (Nov, Naaman, & Ye, 2010).

Altruism

Because individuals do not usually receive immediate benefits or rewards in exchange for contributing to an online repository, some have argued that *altruism*—"absolute lack of self-concern in the motivation for an act" (Kankanhalli, Tan, & Wei, 2005, p. 122)—plays a motivational role. Although this definition suggests that altruism could be considered an other-oriented motivation, most studies consider it to be an individual, internal motivation; thus, we also consider it to be a self-oriented motivation.

Both qualitative and quantitative work have supported the relationship between altruism and online knowledge sharing (e.g., Cho et al., 2010; Hew & Hara, 2007; Moore & Serva, 2007). Surveys of participants in a question and answer site (Lou et al., 2013) and a virtu-

al community (Chang & Chuang, 2011) indicated that altruism was a significant, positive predictor of both knowledge contribution quantity and quality. Similarly, individuals who provided health-related knowledge in a question and answer site (p. 579) (Oh, 2012) and participants in online technical forums (Wasko & Faraj, 2000) were most motivated by feelings of altruism. Kankanhalli et al. (2005) noted that altruism was positively associated with individuals' contribution to electronic organizational repositories, and Jadin, Gnambs, and Batinic (2013) reported that individuals with a prosocial orientation were significantly more likely to be authors—as opposed to just readers—of Wikipedia articles.

However, altruism is not always associated with knowledge sharing. For example, Hung, Durcikova, Lai, and Lin (2011) found that individuals high in altruism did not contribute significantly more ideas during a computer-mediated group brainstorming task than individuals low in altruism. It is possible that these inconsistent results stem from the various ways that altruism is conceptually and operationally defined. Whereas many researchers define altruism as feelings of enjoyment derived from helping others (e.g., Chang & Chuang, 2011; Cho et al., 2010; Hung et al., 2011; Oreg & Nov, 2008), Hew and Hara (2007) refer to altruism as feelings of empathy and compassion for others, and Fugelstad et al. (2012) measured altruism by assessing the frequency at which individuals performed helpful behaviors (e.g., giving up a seat on the bus). Theoretically, the existence of "true" or "selfless" altruism is a matter of some contention. Some scholars argue that altruism is an evolutionary instinct to reward others for cooperation or adherence to norms (Fehr & Fischbacher, 2003), but others argue that an altruistic motivation to help others is actually due to more egotistic reasons (see Andreoni, 1990; Batson, 2014). This suggests that relative altruism, in which an act is motivated only by minor self-concern (Smith, 1981), may also foster knowledge sharing. In sum, whether or not *altruism*, specifically, is the correct term (a conceptual issue), and a strong motivating factor (an empirical issue), is still unclear.

Expertise

Expertise of the collector or the contributor may motivate online knowledge sharing. Although Surowiecki (2004) and others argue for the wisdom of the crowd (i.e., aggregated knowledge contributed by laypeople can generate a more accurate answer than one generated by a single expert), other scholars suggest that aggregated knowledge resources must include some number of experts or knowledgeable contributors in order to achieve an accurate and valuable outcome (Sunstein, 2006); this is especially relevant for some knowledge domains, such as health (Rice, 2004). Not only is expertise needed to contribute information, but users also need relevant expertise to determine which knowledge to collect and to subsequently evaluate it (Rice, McCreadie, & Chang, 2001). Although self-rated expertise was not a significant predictor of knowledge sharing amount or quality in an online professional association (Wasko & Faraj, 2005), tenure and experience in the domain were positively related to contribution. Additionally, the expectation that experts will retrieve and use knowledge contributed by team members was positively related to the likelihood of members contributing knowledge (Huang et al., 2013). However, experts may contribute *less* in some contexts because they fear they (p. 580) will lose their

competitive advantage, damage their reputations by sharing inaccurate or biased knowledge, be critiqued by other experts, or lose face if they do not provide the best answer (Heinz & Rice, 2009; Kang, Kim, Gloor, & Bock, 2011).

Feedback

Feedback—both positive and negative—can also motivate individuals to engage in online knowledge sharing. Although feedback emanates from others—suggesting that it could be an other-oriented motivation—it is individuals' need for and interpretation of it that motivates contribution. When people receive positive feedback, they feel satisfied and competent, and they may also feel that they are responsible for their good performance; accordingly, positive feedback is generally correlated with increased motivation to contribute knowledge (Cheshire & Antin, 2008; Zhu, Zhang, He, Kraut, & Kittur, 2013). For example, receiving comments on a photo posted online tends to predict increased future contribution (Burke, Marlow, & Lento, 2009). Surprisingly, negative feedback can also motivate contribution, as it increases the recipient's desire to improve others' perceptions of his or her performance. However, negative feedback can also decrease motivation (Deci & Ryan, 2013), as it can be perceived as a challenge to the contributor's knowledge or expertise or as a signal that the contribution is counter-normative (Zhu et al. 2013).

Reputation

When individuals' contributions to an online repository can enhance their *reputation*—or others' perceptions of their character or expertise—they may be more motivated to contribute (Kollock, 1999). Prior research has found a positive relationship between reputation enhancement and contribution quantity (Nov et al., 2010; Wasko & Faraj, 2005). Moreover, reputation enhancement is a significant predictor of the quality of individuals' contributions to virtual communities (Chang & Chuang, 2011) and electronic networks of practice (Wasko & Faraj, 2005). Even users with an already high reputation in an online knowledge sharing community may contribute more—as well as higher quality—content (Javanmardi, Ganjisaffar, Lopes, & Baldi, 2009). However, reputation enhancement does not always motivate information contribution. For example, Oreg and Nov (2008) found that Wikipedia editors are more motivated to contribute by enjoyment than perceived reputation building, and other studies failed to find a significant correlation between users' desire to enhance their reputation and their contributions to the online repositories (Lampe, Wash, Velasquez, & Ozkaya, 2010; Yang & Lai, 2010).

Reputation enhancement might be particularly motivating for individuals with professional identities or those participating in professional sites, as reputation has significant implications for organizational and professional outcomes. In a survey of participants in a voluntary, organizational community of practice, Jeon, Kim, and Koh (2011) determined that participants' anticipated recognition from superiors and co-workers (p. 581) significantly predicted their contribution. Knowledge contribution to such an online community or network of practice could affect the contributor's organizational reputation or others' perceptions of his or her professionalism or even of the shared profession itself (Heinz &

Rice, 2009; Wasko & Faraj, 2005). The importance of reputation in professional communities is underscored by Oreg and Nov's (2008) study of contributors to open source projects, which revealed that reputation was a stronger motivator of knowledge sharing for open source software developers than for open source content creators (e.g., Wikipedia editors). Whereas open source content creation is accessible to all interested individuals and rarely requires peer review, open source software developers must possess a degree of expertise, and their work is vetted by a review process; as result, developers' contributions could result in professional reputation-building that benefits their careers (Oreg & Nov, 2008).

Incentives

Individuals are sometimes offered virtual or tangible incentives in exchange for contributing knowledge to online repositories. For example, some repositories (e.g., TripAdvisor, Yelp, Foursquare, and Wikipedia) recognize contributors with virtual badges, whereas other repositories may provide contributors with tangible incentives (such as free products or monetary compensation). Rewards have been found to be a significant, positive predictor of knowledge contribution quantity (Lou, Fang, Lim, & Peng, 2013), and *personally meaningful incentives* are especially motivating (Karau & Williams, 1995). For example, Farzan and Brusilovsky (2011) offered students access to a career planning tool in exchange for their contributions to a course recommendation system. The incentive was an effective motivator: students who had access to the career planning tool contributed significantly more knowledge to the system than those who did not.

However, the effect of incentives on individuals' contribution behavior varies; paradoxically, incentives may even discourage individuals from engaging in voluntary knowledge sharing. A meta-analysis of the effect of external rewards on intrinsic motivation (Cameron & Pierce, 1994) found that expected, tangible rewards consistently have a negative effect on individuals' intrinsic motivation to engage in a task, as do rewards that are contingent on an individual's performance on a task. Two theoretical explanations have been proposed for this apparent paradox. According to the *overjustification hypothesis* (Lepper, Greene, & Nisbett, 1973), when intrinsically motivated individuals are provided with an external reward for their behavior, they attribute their behavior to the external reward and discount the role of intrinsic motivation in their behavior. *Cognitive evaluation theory* (Deci & Ryan, 1985) posits that individuals have a need for competence and self-determination and intentionally engage in behaviors that fulfill these needs. However, those feelings can be diminished by controlling events, or events that are perceived as an attempt to determine one's behavior, such as expected rewards, which results in decreased intrinsic motivation.

(p. 582) Expected Individual Benefits and Costs

Individuals' motivation to contribute to online goods is dependent on the *costs* and *benefits* they expect to experience as a result of sharing their knowledge (Fulk et al., 1996; Heinz & Rice, 2009). Like social exchange theory, information foraging theory (Pirolli &

Card, 1995) suggests that online information seekers make an a priori estimation of the costs and benefits associated with information from certain sources as part of the online information search (and subsequent sharing) process (Taraborelli, 2008).

In addition to the motivations already discussed, the online knowledge sharing literature reveals a number of motivating *individual benefits* in these systems (Ardichvili, 2008), such as improved work performance or social activities, emotional benefits, intellectual benefits, and material gain. Additionally, KSS allow individuals to save time, compare information from different sources and experts, search at their own pace during problem-solving, engage in asynchronous use, and access information without having to know the specific individual provider (Yuan, Rickard, Xia, & Scherer, 2011).

However, users also incur *individual costs* from using a KSS. Learning to use the KSS, as well as browsing, collecting, evaluating, and managing information requires time, energy, and expertise. Contributing knowledge requires similar resources, and users must learn how to codify their knowledge for retrieval and use by others. Additionally, individuals must consider the potential decrease in competitive advantage when sharing exclusive or valuable knowledge (Allen, 1990; Fulk et al., 1996), and they must also consider the potential damage to themselves or others from sharing low-quality or incorrect knowledge (such as in scientific KSS; Kim & Adler, 2015).

Although users differ in their perception of these costs and benefits, most users value information accessibility over quality (Simon, 1972) or sufficiency (Chen, Duckworth, & Chaiken 1999). However, individuals with a high need for information tend to weigh information quality more heavily than accessibility (Lu & Yuan, 2011). Thus, users' motivation to commit their time and effort to sharing accurate information will depend on the purpose of the information (i.e., benefits) and the consequence (i.e., costs) of collecting inaccurate information (Metzger, 2007). For example, individuals may be more motivated to share and collect accurate health or financial information than information of less consequential types, such as entertainment-related.

Other-Oriented Motivations

As discussed, self-oriented motivations do not sufficiently explain all online knowledge sharing. Indeed, some studies (e.g., Chiu, Hsu, & Wang, 2006; Rashid et al., 2006) suggest that self-oriented benefits may not be the strongest motivations for online knowledge sharing. Thus, this section explores these other-oriented motivations, which include reciprocity, social comparison, social loafing, group belonging and sociality, and social/group identity. Before these motivating factors are addressed, we provide an (p. 583) overview of the social identity approach, which allows for a better understanding of other-oriented motivations.

According to *social identity theory* (SIT; Tajfel & Turner, 1986; Turner, 1975, 1991), individuals possess both personal (i.e., those based on individual characteristics) and social (i.e., those based on group membership) identities; together, these identities constitute

individuals' self-concept. Individuals are motivated to attain and maintain a positive self-concept, and they frequently engage in social comparisons to assess their standing relative to others; depending on the context, these comparisons are based on either their personal or social identities. When social identity is salient, *self-categorization theory* (SCT; Turner, 1991; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) argues that individuals see themselves as representatives of their social group rather than unique individuals; consequently, their behavior is guided by the values and norms of their group. Moreover, individuals—driven by their desire for a positive self-concept—engage in behavior that will increase their social group's status. The social identity approach provides a theoretical explanation for many other-oriented motivations, such as social comparison and group identification. Although SIT and SCT are relevant to many other-oriented motivations, social exchange theory (summarized in the previous section, Self-Oriented Motivations) can also explain several other-oriented motivations, such as reciprocity.

Reciprocity

Often, individuals are motivated to engage in a behavior because of expected *reciprocity* by others. According to social exchange theory and related theories of social capital and group behavior (e.g., Blau, 1964; Ekeh, 1974; Putnam, 2000; Thibaut & Kelly, 1965), people tend to expect *direct reciprocity* from those who benefit from their time, effort, or other resources (e.g., knowledge). For example, users of social media sites (Oh & Syn, 2015) and newsgroups (Wasko & Faraj, 2000) were motivated to share knowledge by feelings of reciprocity. Similarly, individuals' expectations of reciprocal relationships significantly predicted contribution to a voluntary, organizational community of practice (Jeon et al., 2011), and participants' perceptions of reciprocity in virtual communities significantly and positively predicted both the quantity and quality of their contributions. Moreover, Cheung, Lee, and Lee (2013) found that contributors to an online professional community were more satisfied with their knowledge sharing experience and more likely to engage in future contributions when their expectations of reciprocity were fulfilled.

Nonetheless, reciprocity is not uniformly associated with increased knowledge sharing. In fact, Wasko and Faraj (2005) found a negative relationship between expectations of reciprocity and knowledge sharing quantity, and others found no significant association between expectations of direct reciprocity and the quantity or quality of knowledge sharing in virtual communities (Chiu et al., 2006; Hung et al., 2011; Lin, Hung, & Chen, 2009).

Changes in the online environment have expanded this one-to-one relationship to a one-to-many relationship. Thus, reciprocity can also be *indirect or generalized*; that is, a (p. 584) contribution to a community can be reciprocated in the future by other community members or through access to a community resource (e.g., Ekeh, 1974; Kollock, 1999; Putnam, 2000; van Doorn & Taborsky, 2012; Wasko, Teigland, & Faraj, 2009). In fact, theories of social capital indicate that people volunteer or become civically active because they anticipate a "long term and conjectural" (Putnam, 2000, p. 135) return—not because they expect direct, immediate reciprocity. Scholars have used indirect or generalized reciprocity to help explain motivations for online knowledge sharing with varying success. In

their larger knowledge sharing model, Cho et al. (2010) reported that a sense of belonging positively influenced generalized reciprocity, which positively influenced intention to share knowledge in Wikipedia. Similarly, teachers participating in an online community of practice were frequently motivated by the expectation of generalized reciprocity (Hew & Hara, 2007). Thus, in many online communities, a sense of generalized reciprocity is likely more motivating than expected direct reciprocity.

Social Comparison

According to *social comparison* theory, individuals evaluate their opinions and abilities by comparing themselves to groups of similar or valued others, especially when objective, non-social criteria are few or non-existent (Festinger, 1954). If these comparisons reveal a discrepancy between an individual's opinions or abilities and those of their group, the individual will attempt to reduce the discrepancy by improving his or her deficient opinion or ability. To do so, the individual may try to influence other group members, or—in the case of extreme discrepancies—they may try to redefine, disidentify with, or leave the group. Because most online sharing sites do not enforce or require membership, the easiest response to highly unfavorable social comparisons concerning contributions is to continue social loafing or to leave the group (Rice, 1987).

Prior research (Samak & Sheremeta, 2013) has shown that social comparison influences online knowledge contribution. For example, Farzan et al. (2008) implemented a ranking system in an enterprise social networking site that highlighted the most productive contributors, making their reputation visible to other users of the site; following the implementation of this system, users contributed significantly more content to the site. Similarly, Hung et al. (2011) motivated participants in a computer-mediated group brainstorming task to contribute by providing them with information about their unique contributions and their ranking relative to other members of the group. After receiving this information, participants contributed significantly more ideas (quantity), and their ideas were significantly more useful and more creative (quality). Feedback that includes specific social comparison information (i.e., positive or negative comparisons of an individual's contributions to those of other users) is also associated with future knowledge sharing (Cheshire & Antin, 2008; Harper, Li, Chen, & Konstan, 2007).

In a field experiment, Harper et al. (2007) provided some users of a user-generated movie rating and recommendation site with information about their contribution amount compared to other users of comparable tenure in the community. Users who (p. 585) received this information rated significantly more movies in the following week than users who were not given this information; they were also more likely to express a desire to increase their standing, relative to other users, and they exceeded their lifetime average weekly contribution amount. Interestingly, there was a decline in the number of reviews provided by "above average" contributors in the week following receipt of the information, indicating users' tendency to alter behavior to correspond to the social comparison norm.

Cheng and Vassileva (2005) implemented a hierarchical membership system in a peer-to-peer file and bookmarking system, placing users into one of three membership categories based on their contribution amount relative to that of others. Each membership category was associated with additional functions within the system, and users who belonged to more prestigious membership categories—high contributors—had access to more additional functions than less frequent contributors. Following the introduction of the membership system and the additional functions, users increased their log-ins, time spent online in the network, and the number of resources shared. Approximately half of the users checked their membership data weekly, and virtually all of these users reported increased effort to upgrade their membership status. Surprisingly, many of the additional functions were not widely used by those who became eligible to do so, indicating that the desire to improve their ranking relative to other users was an effective motivator by itself. Ultimately, the implementation of this system resulted in increased *quantity* of contributions but decreased *quality* of contributions.

One context for social comparison is *social facilitation*, which refers to the increase in effort that individuals exhibit when they are working coactively and know they can be compared to others (Huang & Fu, 2013). In social facilitation research, individuals work collectively with others, but their individual efforts are identifiable and, therefore, potentially evaluable. As a result, individuals experience increased motivation because they believe they are in competition with others (Cottrell, 1972) or because the possibility of evaluation leads to increased self-awareness (Carver & Scheier, 1981) and concerns about self-presentation (Bond, 1982). Extended to online repositories, this approach suggests that new contributors who experience an ambiguous situation may be influenced to contribute more knowledge when they are provided with statistics about users' past contribution amounts (i.e., social comparison), especially if these statistics are based on high contributors; however, prior contributors would need different motivations.

Social Loafing

The non-excludable and discretionary nature of online repositories, in combination with the costs of contributing, encourages individuals to engage in *social loafing*, or the tendency to be less motivated and exert less effort when working collectively than alone (Karau & Williams, 1995). The tendency to engage in social loafing is exacerbated when **(p. 586)** individuals' outputs are pooled, with this sum representing the group's performance (Harkins, 1987). Individuals' tendency to engage in social loafing has been attributed to the reduced ability to monitor the efforts of any one individual (Karau & Williams, 1995). Harkins (1987) found that individuals participating in collective tasks were more productive and more accurate when their efforts would be evaluated than when they would be pooled. Thus, reduced visibility may be the primary cause of social loafing. Williams, Harkins, and Latané (1981) concluded that identifiability mediates the relationship between collective tasks and social loafing. Based on this line of research, the collective effort model (Karau & Williams, 1995) posits that social loafing will be reduced when individuals believe others can evaluate their efforts, which requires visibility and identifiability, and when they feel an affinity for or identify with the group with which they are

working. Thus, expectations of being able to engage in social loafing can serve as a motivation to *not* share knowledge.

The possibility of social loafing is heightened in the online context, due to factors such as anonymity (i.e., low identifiability or visibility), ephemeral group membership, few expectations of future interaction, ease of access, decreased costs of storage and transmission, and the negligible or absent costs of non-participation, or "lurking" (Rice, 1987; Shirky, 2008). Several studies of online knowledge sharing support this line of reasoning. For instance, Samak and Sheremeta (2013) conducted a laboratory experiment in which individuals participated in a computer-mediated public goods game; participants' contributions were either private (not visible) or public (visible). When all participants' contributions were visible, participants contributed significantly more than when participants' contributions were not. Erickson and Kellogg (2000) argued that, in face-to-face interactions, individuals' behavior is based on social cues that are often absent in mediated contexts. To reduce this problem, they designed a socially translucent knowledge-sharing system that allowed for visibility, awareness, and accountability. As a result, users were more aware of other individuals' presence and felt more accountable for their actions. Zhang, de Pablos, and Zhou (2013) examined the effect of visibility on sharing behavior in an organizational knowledge management system, taking into account organizational reward and exchange ideology, or the belief that an individual's work effort is dependent on the organization's treatment of the individual. Organizational reward was not significantly related to knowledge sharing behavior when visibility was low; however, when visibility was high, the relationship between organizational reward and knowledge sharing behavior was stronger for individuals with high exchange ideology.

Group Belonging and Sociality

People may be more likely to share and seek knowledge online when they perceive *similarity* between themselves and other community members, perceive a sense of *belonging* with other online community members, or *identify* with the community or group, even when they do not know the others' true identity (Chiu et al., 2006; Cho et al., 2010; (p. 587) Flanagin, Hocevar, & Samahito, 2013; Lampe et al., 2010; Ling et al., 2005; Rashid et al., 2006).

Users of a movie recommendation site were significantly more likely to rate a movie when they believed their rating would benefit movie viewers who were *similar* to them (Rashid et al., 2006). People are likely to seek out, evaluate, and select knowledge from online health information sharing communities using heuristic cues that are based in perceived similarity with other users, even if they do not know them personally (Sillence, Briggs, Harris, & Fishwick, 2007). A desire to maintain interpersonal connectivity has also been positively linked to perceived contribution to an online community (Lampe et al., 2010). Similarly, *affiliative tendency*, or positive expectations in social relationships, positively corresponds with knowledge sharing amount even when the knowledge was shared with others unknown to the contributor (Lee & Jang, 2010). This supports research that has indicated a potential "social" nature of online knowledge sharers, even when the sites or

systems used are mostly or wholly anonymous (Burke et al., 2009; Correa, Hinsley, & Gil de Zúñiga, 2010; Hocevar, Flanagin, & Metzger, 2014; Hughes, Rowe, Batey, & Lee, 2012; Mikal, Rice, Kent, & Uchino, 2015).

Belonging influences knowledge sharing via a variety of mediators, including generalized reciprocity, altruism, subjective norms, and self-efficacy (Cho et al., 2010). For example, Lampe et al. (2010) found that Everything users with a strong sense of belonging—or affective commitment toward a community—were more likely to contribute to the online encyclopedia in the future. Similarly, bloggers' group involvement, or attachment and sense of belonging to a group, was positively related to their contributions (Kim, Zheng, & Gupta, 2011), and Hew and Hara (2007) found that commitment to the group was a strong motivation for knowledge sharing.

Group Identity

Research has shown a *direct* relationship between shared *group identity* and online content contribution. Individuals' identification with a particular virtual community can be a significant, positive predictor of both the quantity and quality of knowledge contribution (Chang & Chuang, 2011). Nov, Anderson, and Arazy (2010) showed that individuals who were affiliated with a project team contributed more to SETI@home, a volunteer science computing project, than those who were not.

Group identity may also have *indirect* effects with online knowledge sharing. In Nov et al.'s (2010) study, team membership moderated the negative relationship between project tenure and contribution; in other words, the general decline in contribution over time was not as steep for individuals affiliated with a team. However, in order to be effective, this group identity must be salient or meaningful to the individuals. Flanagin et al. (2013) uncovered an indirect relationship between group identity, motivation, and contribution to an online course rating site. When individuals believed other users of the site were similar to them (i.e., high group identification), they experienced higher motivation to contribute and submitted more knowledge to the site than those who believed (p. 588) the other users of the site were dissimilar to them (i.e., low group identification). Similarly, Dholakia, Bagozzia, and Pearo (2004) surveyed participants in several types of online communities (e.g., email lists, bulletin boards, newsgroups, chat rooms, multiplayer games) and also discovered an indirect relationship between social identity and contribution. Social identity was a significant predictor of individuals' desire to interact with their community, which significantly predicted their commitment to participate in a joint action.

Expected Collective Costs and Benefits

Expected collective benefits and costs are other-oriented motivations. *Collective benefits* include establishing ties with others, building a stronger, more sustainable online community, enhancing the relevant profession or community, broadly distributing relevant knowledge throughout a profession or community, and reinforcing normative considera-

tions such as shared values, reciprocity, and conformity (Bagozzi & Tsai, 2014; Chen & Hung, 2010; Heinz & Rice, 2009; Yates, Wagner, & Majchrzak, 2010). *Collective costs* may occur through difficulty in filtering, collecting, and interpreting relevant knowledge in massive online systems. Additionally, the community's credibility or reputation may be damaged by the spread of incorrect or harmful knowledge, breach of confidential or proprietary knowledge, and fluctuations in membership (Kraut & Resnick, 2011).

Contextual Factors

The preceding sections reviewed self- and other-oriented motivations that drive online knowledge sharing. This section briefly reviews several contextual factors. These factors do not motivate contribution, but they serve as preconditions or moderators of relationships between motivations and online knowledge sharing.

Self-Efficacy

Self-efficacy refers to a person's judgment of his or her ability to execute a behavior and generally correlates with better performance (Bandura, 1997). Some scholars have suggested that self-efficacy can directly influence knowledge sharing; for example, self-efficacy positively relates to the amount of knowledge exchanged via an organizational knowledge management system (Cabrera, Collins, & Salgado, 2006). Studies have also suggested that self-efficacy indirectly affects knowledge sharing, either by mediating the relationship between sense of belonging and intent to contribute knowledge (Cho et al., 2010), or by predicting personal outcome expectations (i.e., positive personal outcomes associated with knowledge sharing), which then predict knowledge sharing (p. 589) intent (Hsu, Ju, Yen, & Chang, 2007). Self-efficacy can also reduce the perceived difficulty of an online knowledge seeking activity (David, Song, Hayes, & Fredin, 2007). Although self-efficacy can enhance performance, it may or may not be thoughtfully processed or perceived by an individual as a *motivation* to engage in an activity. Thus, self-efficacy may be more of a precondition of online knowledge sharing than a motivating factor by itself.

Trust

Trust is positively associated with the quality of knowledge shared in online virtual communities (Chang & Chuang; 2011; Chiu et al., 2006), and trust based on identification with a virtual community of practice positively relates to knowledge sharing (Usoro, Sharratt, Tsui, & Shekhar, 2007). Indeed, trust and community- or group-related motivations likely go hand in hand, as people are more likely to trust those with whom they share group or community membership (Turner, 1991). However, a certain level of trust may be a necessary precondition of knowledge sharing rather than a motivation itself, as the potential knowledge sharer must have some level of additional motivation (Ardichvili, 2008). Huang et al.'s (2013) study of 17 work groups across the US and Western Europe explained how trust is required for developing both connective and communal knowledge and for knowing what knowledge is valuable and usable for collecting and contributing.

Venue

The *venue*—or the contextual, design, or environmental factors of specific online KSS—may influence the relationship between motivations and sharing. Research on organizational technology-mediated KSS indicates a host of such factors. These include organizational support or incentives, an organizational culture that is supportive of knowledge sharing, job autonomy, level of activity load, team characteristics, and KSS affordances (Cabrera et al., 2006; Ellison, Gibbs, & Weber, 2015; Heinz & Rice, 2009; Rice et al., 2017; Wang & Noe, 2010; Yu, Lu, & Liu, 2010). In contexts such as organizational intranets, where knowledge sharing carries potential, professional risk, or the sharers may know each other personally, factors such as power differences between seeker and sharer, desire for impression management, evaluation apprehension, and organizational culture may influence sharing (Cabrera et al., 2006; Kim & Lee, 2006; see reviews in Hall, 2001; Heinz & Rice, 2009; Wang & Noe, 2010). Unfortunately, few studies compare motivations for knowledge sharing across venues or sites/systems.

One problem with the knowledge sharing literature, particularly in the online context, is that many scholars tend to implicitly presume that all users of all kinds of online knowledge sharing venues have *similar motivations* for various sharing behaviors. An exception is Moore and Serva's (2007) review of the literature on motivations for (p. 590) contribution to virtual communities, which classified 14 motivations identified by prior studies by their relevance in different types of virtual communities at that time. Prior studies had identified motivations to contribute to Internet forums and wikis to include altruism, belonging, recognition, and reputation, while motivations for blog contribution included recognition and reputation, but not altruism or belonging. In Fuglestad et al.'s (2012) study of MovieLens.com users, different reasons for joining the online community were similarly associated with different patterns of knowledge sharing.

Directions for Future Research

Studies of *intrinsic and extrinsic motivation* for online knowledge sharing have struggled with effectively or consistently conceptualizing the two types of motivation, calling into question some of the results in this area of research. As a result, it may be prudent to rely on the operationalization (e.g., enjoyment) rather than the larger concept it is purported to represent (i.e., intrinsic or extrinsic motivation) when interpreting its relationship with online knowledge sharing. Future research should also examine the influence of intrinsic motivation on other motivational factors. For example, higher initial levels of intrinsic motivation can decrease the effects of other potential motivations on knowledge sharing (David et al., 2007), and extrinsic motivations can decrease intrinsic motivations (Cameron & Pierce, 1994). This suggests that intrinsic motivation should be measured even in research that is focused on other motivating factors.

Though the fundamental challenge to online knowledge contribution is the social dilemma of individual self-interest versus collective action and public goods, more conceptual

work needs to distinguish which motivations are clearly *self-oriented* versus *other-oriented*, and which aspects of those motivations involve one or the other, or both. For example, reputation typically refers to an individual motivation, but reputation is created through and embedded in social norms, comparisons, and consequences. Further, both intrinsic and extrinsic motivations can be more or less self- versus other-oriented.

It would be useful to better understand when *generalized* or *indirect reciprocity* is more or less motivational to users. Possible avenues for future research include community motivations (cultural values and norms such as collectivism or individualism; Kang, Kim, Gloor, & Bock, 2011), and the explicitness and time frame of possible generalized reciprocity.

Unfortunately, the literature examining online knowledge sharing only rarely distinguishes between knowledge *collecting* and *contributing* (typically referring to "sharing" or "exchange"). For example, Chai, Das, and Rao's (2011) integrated model of motivations for knowledge-sharing behaviors does not distinguish between collecting and contributing.

Nor does much prior research analyze relations between motivations and the *quality* (accuracy, helpfulness, usefulness, depth, etc.) and *quantity* (number or length of **(p. 591)** contributions) of the content (for two exceptions, see Chang & Chuang, 2011; Phang, Kankanhali, & Huang, 2014). Understanding what motivates users to share high quality knowledge is critical to the larger understanding of factors that influence the overall quality of Internet information (especially, for example, health information). One of the attributes of information that can influence its value is its accuracy (Laxminarayan & Macauley, 2012). In traditional media effects and persuasion literature, message characteristics such as information accuracy can influence perceptions and behavior (e.g., Millar & Millar, 2000; Petty & Cacioppo, 1986). In the online context, people who are knowledgeable about and involved in a topic may identify inaccuracies about that topic and thus be motivated to contribute content of their own (e.g., comments or edits) to correct it. This is especially valued in open source software communities and the Wikipedia community (Kittur & Kraut, 2008; Nov, 2007; Schroer & Hertel, 2009). Few studies have examined motivations for online sharing of high-quality knowledge, though Chang and Chuang (2011) and Chiu et al. (2006) reported that trust, community-related outcome expectations, shared vision, social interaction, and reputation significantly predict shared knowledge quality. Some research in virtual communities suggests that group identification positively relates to the quantity but not quality of shared knowledge (Chiu et al., 2006). Interestingly, out of many factors that predicted knowledge sharing *quantity* (social interaction ties, norms of reciprocity, identification, shared language, and shared vision), only trust, community-related outcome expectations, and shared vision (i.e., whether members share the same goals and values about knowledge sharing) significantly also predicted knowledge sharing *quality*. While group identification was not a significant predictor of knowledge quality, other group- or community-based variables (i.e., shared values/vision, community outcome expectations) were.

Few studies consider both *individual and collective levels of both costs and benefits* as motivations for of online sharing, as reviewed by Heinz and Rice (2009); an exception is Brake's consideration of benefits of online community knowledge sharing at both levels (2014). Finally, while much research considers a wide variety of aspects of KSS *venues*, few relate those to motivations for sharing. Extending Morre and Serva's (2007) approach, it would be useful to conceptually or operationally define multiple motivations and venues, and to provide a theoretical rationale for the relationships found between each motivation and venue.

Conclusion

Digital KSS (such as online repositories, networks of practice, and social network sites) have fostered the development of diverse online public goods, such as connectivity among known and unknown users worldwide as well as communality of shared content. This sharing has raised the question of why individuals would voluntarily share knowledge, when rational actor theory and self-interest would argue against engaging in (p. 592) directly unreciprocated activity. So identifying and explaining the motivations for such online knowledge sharing has generated considerable research, although often contradictory and confounded. By identifying two categories of motivations, based on self-oriented and other-oriented factors, along with contextual factors such as self-efficacy, trust, and the social and technological venue, this chapter has aimed to clarify distinctions and summarize considerable research on this fundamental question. Figure 21.1 portrays the organizing framework of motivations for online knowledge sharing.

Figure 21.1 Summary of review of motivations for online knowledge sharing.

Yet a variety of research questions remain. As digital technology continues to evolve and diffuse, answering these questions will help system designers, practitioners, researchers, and users better understand how to motivate the important process of sharing knowledge online. However, ongoing developments in digital technology will likely reveal other motivations, possibilities, obstacles, and contextual factors.

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