

Posters versus Lurkers: Improving Participation in Enterprise Social Networks through Promotional Messages

Completed Research Paper

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Abstract

Enterprise social networks (ESNs) often fail if there are few or no contributors of content. Promotional messages are among the common interventions used to improve participation. While most users only read others' content (i.e. lurk), contributors who create content (i.e. post) account for only 1% of the users. Research on interventions to improve participation across dissimilar groups is scarce especially in work settings. We develop a model that examines four key motivations of posting and lurking. We employ the elaboration likelihood model to understand how promotional messages influence lurkers' and posters' beliefs and participation. We test our model with data collected from 366 members in two corporate Google+ communities in a large Australian retail organization. We find that posters and lurkers are motivated and hindered by different factors. Promotional messages do not – always – yield the hoped-for results among lurkers; however, they do make posters more enthusiastic to participate.

Keywords: Enterprise social networks, promotional messages, motivation, lurker, poster, elaboration likelihood model, survey

Introduction

Enterprise social networks (ESNs) have gained prominence in contemporary organizations (Chang et al. 2015). An ESN is an organizationally bound, private social network that facilitates the communication of short messages and the establishment of social connections within organizations (Kiron 2013; Zhao and Rosson 2009). Popular examples of ESNs include Yammer, Jive and Google+ corporate communities. ESNs allow organizations to create a digital space in which co-workers can connect, collaborate and exchange information (Kane et al. 2014). Although public social networks like Facebook and Twitter are highly utilized in the public domain, ESNs remain underutilized in the work environment, with recent studies showing that many ESN initiatives struggle to gain momentum and wider adoption by users (Kügler and Smolnik 2014; Malinen 2015; McAfee 2009). A study by the International Data Corporation (in Rosenbush and Boulton 2014) predicted the growth of ESNs to drop in 2018 by roughly 50% (from 42% to 23%). Like other online communities, ESNs are dependent on members to create content. If there are few or no contributors, the ESN implementation will eventually fail as there will be no more content to be consumed (Matzat and Rooks 2014).

In attempting to boost contributions, practitioners (e.g. Adamson (2014), Perez (2014) and Pisoni (2013)) have proposed several interventions to enhance user participation in ESNs, including promotional messages, management involvement and social media policy. Promotional messages, in particular, are the most widely used intervention to encourage employees' participation in ESNs (All 2014; Qualman 2012; Yuan et al. 2013). However, these proposals require an appropriate empirical and theoretical base. Yet, academic research on interventions to promote users' online participation in a work setting is still scarce (Schneider et al. 2013).

We set out to examine promotional messages and their impact on ESN participation. Understanding how organizational stimuli (i.e. promotional messages) influence employees' beliefs about an ESN requires first of all the identification of those beliefs. This identification is essential for examining the effectiveness of promotional messages in shaping a positive perception of the platform and ultimately encouraging users' participation. Furthermore, in the vast majority of online communities, 90% of members only read others' content (i.e. lurk), while 1% of members actively create new content (i.e. post) (Arthur 2006). The literature on online participation suggests that users' motivations to post (or lurk) could be very different (Zhang et al. 2013), and promotional messages tend to be designed to target the lurker user group.

Our research aims are therefore:

- (i) to identify the key reasons that drive ESN members to either lurk or post after they have already been introduced to the platform; and
- (ii) to examine whether promotional messages improve users' beliefs or, worse, turn off posters' willingness to participate, as well as the extent of that influence.

We develop a theory by building on Kankanhalli et al.'s (2005) model of knowledge contribution to identify the salient motivations for user participation categorized in four dimensions: extrinsic¹ benefits, extrinsic costs, intrinsic² benefits, and intrinsic costs. We then turn to the elaboration likelihood model (ELM) (Petty and Cacioppo 1986) to understand how the influence routes of promotional messages will impact on individuals' beliefs and subsequent participation across different user groups (i.e. lurkers and posters). We examine our theoretical model using survey data collected from two online communities in a large Australian retail organization.

Our research makes theoretical and practical contributions. First, we further the understanding of users' perceived benefits and possible barriers to content creation in ESNs and examine the influences of four dimensions (i.e. extrinsic and intrinsic benefits and costs). Second, we provide the first cross-sectional empirical study of what motivates and hinders the poster and lurker user groups in a work setting. Third,

¹ Users perform an activity "because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself" (Davis et al. 1992, p. 1112), such as improved job performance.

² Users interact with a system "for no apparent reinforcement other than the process of performing activity per se" (Davis et al. 1992, p. 1112), such as perceived fun.

we further develop the concepts of persuasive influences in IS research. Through the theoretical lens of the ELM, our empirical study evaluates a promotional message’s influence on the four dimensions of users’ beliefs and the subsequent participation behaviors across different users (i.e. lurkers and posters). Fourth, the findings of our study will enable practitioners to identify the direction and level of influence of already implemented interventions with the aim to boost employees’ participation.

The remainder of this paper is organized as follows. First, we review the research on ESN and lurking and posting behavior. Then, we describe the theoretical foundation of our research, and develop our research model. Next, we discuss the data collection and measurement. We then report the findings and provide a discussion of our results. Finally, we discuss the implications and limitations of the study, and highlight directions for future work.

Background

Existing Studies on ESNs

A major recurring problem for ESN community managers is that a large number of community members do not create content (Alarifi and Sedera 2013, 2014; Grigore and Rosenkranz 2011; Recker and Lekse 2016). In the relatively short period of time in which ESNs have been available, a growing body of academic literature has investigated the behavioral issues of employees’ adoption and use of ESNs, yet most of these were qualitative studies (refer to Table 1 for examples of the qualitative studies). There have been limited empirical studies on individual-level motivations to use (or not use) ESNs (with a few exceptions such as the work by Kügler et al. (2014, 2015)). Further theory-based quantitative studies are needed to examine employees’ use of social technologies (El Ouiridi et al. 2015; Ren et al. 2012).

| Table 1. Qualitative Studies | |
|--|---|
| Author(s) | Description |
| Kügler et al. (2013, 2012) and Ortbach and Recker (2014) | Proposed conceptual models of the determinants of ESN usage (by means of qualitative data) |
| Meske and Stieglitz (2013) | Interviewed decision-makers in small and medium-sized enterprises to identify issues and concerns regarding their adoption of ESNs |
| Stocker et al. (2012) | Reviewed three case studies and identified the state of the art on microblogging services regarding their use and benefits |
| Richter et al. (2013a, 2013b) | Provided recommendations and implementation strategies (e.g. improving employee-to-employee communication) for ESNs in Germany, Austria and Switzerland |
| Riemer et al. (2013, 2012) | Identified different types of communicative work practices in a genre analysis of Yammer messages at Deloitte Australia |

Understanding the types of management interventions to improve users’ participation (e.g. promotional messages, management involvement, social media policy) and identifying the best ways to exercise interventions are attractive research areas for both academics and practitioners (Alarifi et al. 2014; Schneider et al. 2013). Although motivating users to participate in online activities has been one of the most widely studied topics in online research (Ren et al. 2012), the academic research on interventions to promote users’ online participation (e.g. Bock et al. (2006), Koh et al. (2007), and Won-Seok et al. (2002)) largely pre-dates the establishment of ESNs. Furthermore, practitioners have suggested interventions, particularly promotional messages, to enhance user participation in ESNs (Qualman 2012; Yuan et al. 2013). Pisoni (2013), the co-founder and CTO of Yammer, highlights promotional messages sent as emails or online posts as the most common and effective communication used by management to promote a broad range of information about the ESN (e.g. its benefits, qualities and recent topics discussed). Other practitioners (e.g. All (2014) and Li (2015)) offer the same endorsement of the use of promotional messages to encourage employees’ participation in ESNs. However, these proposals need theoretical and empirical backing.

The type of online community might impact the activities (Wasko and Faraj 2005), characteristics (Preece 2001) and user beliefs (van der Heijden 2004). Compared to other commonly used communication technologies in organizations, an ESN offers unique affordances such as the high visibility and persistence of other employees' actions and the sense of live feedback interactions (Leonardi 2013; Rahman et al. 2014; Zhao et al. 2009); as a consequence, employees' drivers to use these platforms might be different (Kügler et al. 2012; Richter et al. 2011). However, there is little theoretically grounded research "on what makes some online communities more successful than others" (Ren et al. 2012, p. 841), particularly in the work environment. Lastly, the extant literature on employees' use of social software focuses mainly on posters, without considering the motives and usage behaviors of the larger user group – lurkers (Alarifi et al. 2014; Lai and Chen 2014; Malinen 2015).

Lurking and Posting in Online Communities

Lurking is an essential behavior in any online community. The reasons for this vary: for instance, lurkers increase the popularity of an online community and generate website traffic and hits (Koh et al. 2007). Nonnecke et al. (2004) researched participation in an online discussion board and found that lurking was a way for newcomers to learn about the online community. After all, the lurkers constitute the audience that consumes the knowledge created by the posters. The "90–9–1" principle of collaborative websites posits that 90% of network members only read others' content (i.e. lurk), 9% of members edit the content, and 1% of members actively create new content (i.e. post) (Arthur 2006).

In general, lurkers never or rarely post in the community to which they belong; rather, they regularly browse others' posts and try to find the answers to their questions (Muller et al. 2010). The literature on online communities is conflicted regarding the provision of a specific threshold for lurking behavior (Alarifi et al. 2014). Most researchers have developed their own definition of lurking (Ridings et al. 2006). Among the various definitions, lurkers have been described as a "persistent but silent audience" (Rafaeli et al. 2004), members who never post (Ridings et al. 2006), members who posted once in the last three months (Nonnecke and Preece 2000), or members who do not post more than one message in a 6 week period (Han et al. 2013).

Online communities are highly varied in terms of their domains (Yan and Davison 2013). In a recent review of the lurking literature, Sun et al. (2014) concluded that lurking is a context-dependent behavior and depends on how active or inactive the community is; for example, lurkers in technical communities may be considered posters in synthetic communities. Therefore, the threshold that differentiates lurking from other posting behaviors should be set in relation to the average number of posts in that online community during a specific timeframe (Rau et al. 2008; Sun et al. 2014). Accordingly, and in line with our sample mean (i.e. the number of posts and comments), this study defines lurkers as *members who did not create any content (post or comment) in the last month* (the lurking threshold is discussed in more detail in the later section on "comparing posters and lurkers"). On the other hand, based on Ridings et al.'s (2006) definition of posters as "community members who actively contribute content", we define posters as *members who posted or commented at least once in the last month*.

Posters and lurkers are motivated by different factors (Koh et al. 2007). For example, Wasko and Fara (2005) found that posters mainly contributed knowledge for extrinsic reasons (such as enhanced reputation), whereas a study by Preece et al. (2004) found an intrinsic factor ("just reading is enough") was the dominant reason for lurking. Similarly, in a content analysis of 15,505 enterprise microblogging messages, Beck et al. (2014a) found that the user characteristics differed between knowledge seekers and knowledge contributors: the knowledge seekers' characteristics were more important in determining the knowledge exchange. Furthermore, influencing users to participate could have different outcomes in different user groups (Nuwangi et al. 2012, 2013, 2014). For example, interventions to improve user participation (e.g. promotional messages) might not yield the hoped-for results because strategies that encourage lurkers to be more active may not translate into posters' willingness to continue being active posters. However, with the exception of a few studies such as the work by Preece et al. (2004) and Yan et al. (2013), researchers have largely focused on the behavior of posters and 'how' or 'why' they use or share their knowledge in ESNs (e.g. Antonius et al. (2015) and Beck et al. (2014b)).

Theoretical Foundations

Motivations to Share Knowledge

Motivation theories suggest that individuals always initiate behaviors to satisfy the full range of their needs (Deci 1975; Deci and Ryan 1985). Broadly, needs-based motivations fall into two major groups: intrinsic and extrinsic motivations (Wu and Lu 2013). Extrinsic motivations refer to “the performance of an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself” (Davis et al. 1992, p. 1112), such as improved job performance or enhanced image. With intrinsic motivations, users interact with a system “for no apparent reinforcement other than the process of performing the activity per se” (Davis et al. 1992, p. 1112), such as perceived fun. IS researchers have identified extrinsic and intrinsic motivations for creating content in public and corporate online communities (Beck et al. 2014b). In public use, the motivations have been found to include, among others, social connections (Boyd and Ellison 2007); in corporate use, motivations have been found to include, among others, personal brand building and reciprocity (Kankanhalli et al. 2005; Wasko et al. 2005).

Taking a purely positive approach and examining only beneficial motivations to understand technology use may leave important facets undiscovered (Zhou 2011). Cost factors such as the codification effort (Beck et al. 2014b; Kankanhalli et al. 2005) have been found to significantly hinder knowledge-sharing behavior. Another example of a cost factor is when users are afraid that sharing knowledge with others will lead them to lose their knowledge.

During a social exchange, the individual-level benefits are the motivators of human behavior and can be extrinsic or intrinsic in nature (Kankanhalli et al. 2005). In the context of knowledge contribution, extrinsic benefits are “sought after as means to ends desired by people” (Kankanhalli et al. 2005, p. 116) such as reputation building, while intrinsic benefits are “sought after as ends by themselves” (Kankanhalli et al. 2005, p. 116) such as the satisfaction or joy of helping others. On the other hand, loss of knowledge power can be considered an extrinsic cost because people could lose resources (e.g. tacit knowledge). In line with Davis et al. (1992) definition of extrinsic motivations above, the loss of knowledge are distinct from the activity itself (online contribution).

Kankanhalli et al.’s (2005) model of knowledge contribution is one of the most influential models of knowledge contribution (He and Wei 2009; Liang et al. 2008; Wang and Noe 2010). The model comprises the extrinsic benefits dimension (organizational reward, reciprocity, image), intrinsic benefits dimension (self-efficacy, enjoyment in helping others) and cost dimension (codification effort, loss of knowledge power). The present study employs Kankanhalli et al.’s (2005) model of knowledge contribution to account for the extrinsic and intrinsic benefit-relevant factors and the cost-relevant factors that drive users to either lurk or post in ESNs. In the section on “model development” we discuss each of the selected dimensions in further detail.

Elaboration Likelihood Model

To understand how motivations to participate could potentially be influenced through interventions such as promotional messages, we need to examine the theories on factors that influence human behaviors. Several theories have been proposed to understand and possibly alter human cognitive strategies and actions, such as the push–pull mooring model from migration theory (Bansal et al. 2005), the motivation–opportunity–ability model of human behavior (MacInnis et al. 1991), the control theory of users’ actions (i.e. the controlee) (Kirsch 1996), the health belief model (Rosenstock 1974), and many others. Persuasion frameworks are particularly appropriate when the technology use is voluntary in nature (Kane et al. 2014).

We employ the ELM (Petty et al. 1986) and propose the central and peripheral routes of influence to understand how management interventions such as promotional messages will influence users’ motivations for either lurking or posting behaviors in an ESN. Our rationale for selecting this model lay in:

- (i) its ability to relate a management intervention (i.e. promotional message) to individuals' beliefs;
- (ii) its suggestion that beliefs change first before behavior (in other words, the user first receives and understands the message before he or she acts);
- (iii) its ability to explore and explain the "black box" of influence processes within the ESN context, namely, understanding the two outcomes (the central and peripheral routes) of promotional messages on individuals' beliefs and subsequent participation across lurkers and posters; and
- (iv) the availability of ample empirical support (e.g. Angst and Agarwal 2009; Bhattacharjee and Sanford 2006; Chuang and Shih 2014; Luo et al. 2013; Sussman and Siegal 2003).

The ELM posits that human attitudes can be changed by two "routes" of influence, namely, the peripheral route and central route (Petty et al. 1986). The difference between the two routes is the amount of cognitive effort involved or "elaboration" required by the individual (e.g. simple cues or task-relevant arguments) (Bhattacharjee and Sanford 2006; Petty et al. 1986). In the central route, the person needs "to think critically about issue-related arguments in an informational message and scrutinize the relative merits and relevance of those arguments prior to forming an informed judgment about the target behavior" (Bhattacharjee and Sanford 2006, p. 808). In the peripheral route, which involves less cognitive effort, "subjects rely on cues regarding the target behavior" (Bhattacharjee and Sanford 2006, p. 808). Examples of the relevant information to be communicated in the central route include the system's features or qualities, the potential benefits of using the system, the availability of system support and the costs of and returns from using the system. On the other hand, in the peripheral route, individuals rely on cues in messages regarding the target behavior (such as whether or not a promotional message was sent by a manager or an expert, or the number or status of the people copied into the message) rather than on the quality of the information presented in the message (Bhattacharjee and Sanford 2006). The central and peripheral routes are often operationalized using "argument quality" and "source credibility", respectively (Bhattacharjee and Sanford 2006).

The ELM has been examined in a range of different disciplines including social psychology (e.g. Petty et al. (1986)), organizational behavior (e.g. Elangovan and Xie (1999)), health (e.g. Cameron (2009)) and marketing (e.g. Lord et al. (1995) and Chang et al. (2015)), and has become increasingly popular in IS. While the majority of ELM studies use "attitude" as the dependent variable, some scholars have examined the impact of the peripheral and central routes on "beliefs." IS researchers have applied the ELM on the beliefs held by users. For example, (i) Bhattacharjee and Sanford (2006) studied IT acceptance and explained how the perceived usefulness of knowledge was formed by processes of outer influence (i.e. training), (ii) Sussman and Siegal (2003) demonstrated how the argument quality and the source credibility of the messages received by users can influence the perceived usefulness of the information in those messages, (iii) Jin et al. (2009) surveyed 240 users of a Bulletin Board System in a university in China and found that user satisfaction was determined by information quality and source credibility, and (iv) a few studies have applied the ELM to examine other beliefs, such as the work by Pee (2012) on trust and Wu et al. (2011) on curiosity.

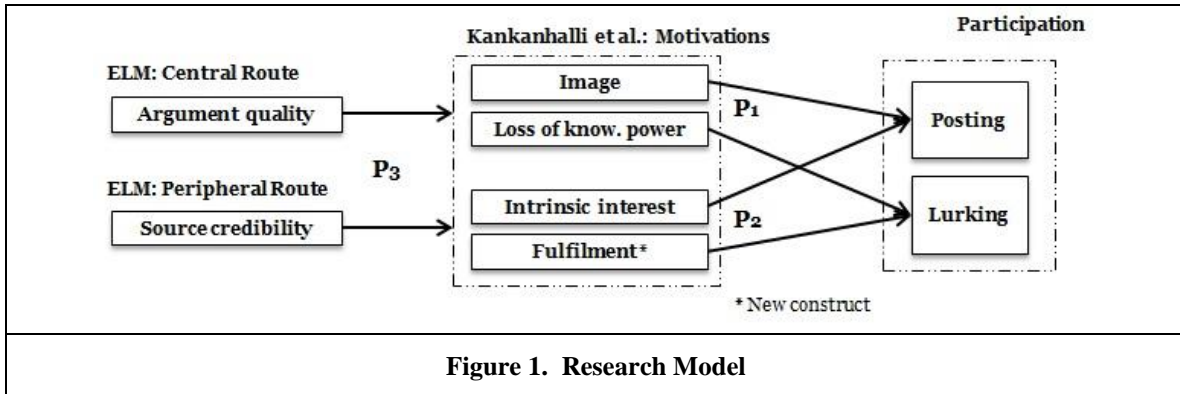
Previous ELM research showed that an individual's use of central and peripheral routes for information processing is not necessarily mutually exclusive (Lange et al. 2012). For instance, Bhattacharjee and Sanford (2006) found that an IT user "may sometimes employ both processes simultaneously in forming perceptions related to IT acceptance" (p. 820). Along these lines, we believe that ESN members can employ both the central and peripheral routes to process the information in promotional messages. In other words, users' perceptions (i.e. the perceived extrinsic and intrinsic benefits and costs of participation in the ESN) can be formed or influenced by a careful reading of the true merits of the information in the promotional messages (central route) but they may also be influenced by peripheral cues in these messages (e.g. the source or title of the message) that require less cognitive effort (peripheral route).

We argue that examining the two ELM persuasion-based routes (i.e. operationalized using argument quality for the central route and source credibility for the peripheral route) of promotional messages could help to explore and explain how such interventions influence users' beliefs about the ESN and the subsequent participation behavior across different users (i.e. lurkers and posters). In doing so, we expand the dependent variable in ELM research to include motivations for lurking or posting behavior in ESNs. Furthermore, we are not aware of any empirical study which employs the ELM in a comparative group analysis (i.e. lurking and posting groups) of the online participation problem.

Research Model

Model Development

Figure 1 shows our research model. The central thesis of our model is that, firstly, participation behavior in an ESN is dependent on four motivations to participate, namely, image and intrinsic interest as benefits and loss of knowledge power and fulfillment as costs. Secondly, the model proposes that the four motivations are influenced by the argument quality and the source credibility of the promotional messages sent by management to influence ESN participation. We discuss each element of our model in turn.



For any online community, participation is essential for its sustainability (Zhou 2011). Koh et al. (2007) categorize participation in an online community as passive participation (what we call lurking) or active participation (what we call posting) and add that “without viewing and posting, a virtual community is not sustainable” (p. 73). Others (e.g. Han et al. (2013)) consider lurking behavior as reception-only participation. Similarly, most microblogging activities in ESNs take the form of either viewing other posts (i.e. lurking) or posting.

Participation occurs when the perceived benefits outweigh the perceived costs of participation (Beck et al. 2014b). Past research on IS usage demonstrates that perceptions regarding the extrinsic and intrinsic benefits and the effort required to add and edit content strongly influence the use of knowledge management systems (Beck et al. 2014a; Kankanhalli et al. 2005; Sun et al. 2012; Wasko et al. 2005). Building on Kankanhalli et al.’s (2005) model, our study examined a number of motivations for user participation categorized in four dimensions: extrinsic benefits, extrinsic costs, intrinsic benefits, and intrinsic costs. The aim was to capture the salient motivations of poster and lurker user groups by examining the extrinsic and intrinsic benefits that make users post, as well as the extrinsic and intrinsic costs that make users lurk. We adopted Kankanhalli et al.’s (2005) conceptualization of “image” as the extrinsic benefit of posting and “loss of knowledge power” as the extrinsic cost of lurking. Although the intrinsic benefit of “enjoyment in helping others” is an important factor in predicting knowledge sharing in Kankanhalli et al.’s model, we decided it was better to extend this concept to capture broader aspects of users’ own pleasure and enjoyment. Therefore, we employed “intrinsic interest” as conceptualized by Webster et al. (1993) as the intrinsic benefit of posting. Intrinsic interest represents an intrinsic type of motivation (Webster and Martocchio 1992; Webster et al. 1993), and research in IS has confirmed the significant effect of intrinsic interest in shaping people’s use of an IS (e.g. Ali-Hassan et al. (2011) and Scheepers et al. (2014)). The knowledge sharing literature suggests that the factors we have selected are significant drivers of participating (and non-participating) behavior. Further, in the interests of (i) parsimony, (ii) highlighting the influences of all four dimensions (i.e. extrinsic and intrinsic benefits and costs), and (iii) relevance to ESN implementation, we did not include all the factors in Kankanhalli et al.’s model. Codification effort was excluded due to its lack of relevance to the ESNs as the users in our study had pre-existing familiarity with public social networks and had used the ESN for at least one month (as discussed in the later section on “design and procedures”). In addition, the codification effort proposed in Kankanhalli et al.’s model has been found to have a negative but non-significant effect on knowledge sharing (Beck et al. 2014b); therefore, it was expected that the codification effort would be minimal in our context. Similarly, the organizational reward factor in Kankanhalli et al.’s model was not applicable

because, in this study, we examined promotional messages as an organizational intervention to improve participation. There were no economic incentives in the network investigated in our study.

The work by Preece and Nonnecke (2000; 2001; 2004) on understanding the reasons for lurking is well acknowledged in the literature (e.g. Bishop (2007), Bishop (2011), Muller (2012), Muller et al. (2010), Rau et al. (2008), Ridings et al. (2006) and Sun et al. (2014)). In a survey of 219 lurkers regarding their reasons for not posting, Preece et al. (2004) found “just reading/browsing is enough” to be the dominant reason for lurking in online discussion communities. More than half (53.9%) of the lurkers selected that reason for their lurking behavior because they believed that “they got what they wanted, and there was no need for them to post” (Preece et al. 2004, p. 220). However, we are not aware of any research that provides a conceptualization of this reason. For the purposes of the present study, we conceptualized a new construct which we named “perceived fulfillment” and defined as “the extent to which members feel their needs for using the ESN are fulfilled through reading only”. Perceived fulfillment is an intrinsic cost in our model. To conclude this part of the discussion, we note that the four dimensions, namely, extrinsic and intrinsic benefits and costs, align well with our first research objective.

Next, we examined how the motivations to participate were formed (the second research objective). We employed the ELM (Petty et al. 1986) because it offers “a theoretical explanation for observed differences in the amount of *influence* accepted by recipients exposed to new information” (Angst et al. 2009, p. 341). The influence is captured by two routes of influence, namely, the peripheral route and central route (Petty et al. 1986) (as discussed in detail above in the section on the ELM). In IS research, the ELM has been employed to examine different management interventions (e.g. training, promotional emails) that aim to engage employees (e.g. Bhattacharjee and Sanford (2006), Li (2013) and Sussman et al. (2003)).

In sum, our theory suggests that the salient motivations for users’ participation can be categorized in four dimensions: (a) extrinsic benefit (operationalized using “image”), (b) extrinsic cost (operationalized using “loss of knowledge power”), (c) intrinsic benefit (operationalized using “intrinsic interest”), and (d) intrinsic cost (operationalized using “fulfillment”). It further posits that promotional messages can influence these beliefs through: (i) the central route (operationalized using “argument quality”) and (ii) the peripheral route (operationalized using “source credibility”) of promotional messages. Table 2 summarizes the construct definitions.

| Construct | Definition | Reference |
|---|---|----------------------------------|
| Argument quality | The persuasive strength of the arguments embedded in the message*. | (Bhattacharjee and Sanford 2006) |
| Source credibility | The extent to which a message* source is perceived to be believable, competent and trustworthy by ESN users. | (Bhattacharjee and Sanford 2006) |
| Image (as an extrinsic benefit) | The extent to which an individual believes that posting on the ESN enhances his/her social self-concept in the ESN. | (Wasko et al. 2005) |
| Loss of knowledge power (as an extrinsic cost) | The perception of power and unique value lost due to posting knowledge in the ESN. | (Kankanhalli et al. 2005) |
| Intrinsic interest (as an intrinsic benefit) | The extent to which members are involved in the activity for its own pleasure and enjoyment rather than for some utilitarian purpose. | (Webster et al. 1993) |
| Perceived fulfillment (as an intrinsic cost) | The extent to which members feel their needs for using the ESN are fulfilled through reading only. | Self-developed |
| * Persuasive communication sent by management through emails or online posts to encourage users’ participation and to provide information about the ESN (e.g. its benefits, qualities and recent topics discussed). | | |

Motivating Participation Behaviors

Our research model suggests that two classes of motivations (namely, intrinsic and extrinsic motivations) impact participation in ESNs. Because we are particularly interested in distinguishing two extreme forms of ESN participation – posting vs lurking – we examined polarized pairs of these motivations.

Individuals engage in social interaction if they expect that they will get social rewards such as respect or status (Blauner 1964; Wasko et al. 2005). As an extrinsic benefit, image enhancement has an important influence on individuals' behaviors (McLure Wasko and Faraj 2000). Several studies on technology adoption have highlighted the importance of the motivation to maintain a favorable social status or image in driving system use (Moore and Benbasat 1991; Plouffe et al. 2001; Salim et al. 2014, 2015; Turel et al. 2007; Venkatesh and Davis 2000). Furthermore, results from prior research in public and corporate online communities (e.g. Kankanhalli et al. (2005) and Wasko et al. (2005)) found members actively participated when they believed participation enhanced their personal image. In a recent study on employees' use of an ESN, Kügler et al. (2015) found image enhancement to play a major role in employees' use of the ESN. We argue that image has a greater influence on posters than on the lurker user group.

On the other hand, Gray (2001) highlights that loss of knowledge power (i.e. an extrinsic cost) is just as important to understanding why employees don't participate in knowledge management systems. Kankanhalli et al. (2005) identify the loss of knowledge power as a cost incurred in the process of sharing knowledge which entails a negative relationship with knowledge contribution. Some users are afraid that contributing may lead to the loss of their unique value (i.e. their knowledge) (Ding and Huang 2014) especially in a competitive environment in which knowledge is important (e.g. tacit knowledge). We argue that the perceived loss of knowledge power has a greater influence on the lurker user group. Therefore, in framing the study, we proposed:

Proposition 1 – Perceived extrinsic benefits and costs will impact ESN participation behavior, such that the perceived extrinsic cost of 'loss of knowledge power' will encourage lurking behavior and the perceived extrinsic benefit of 'image' will encourage posting behavior.

Intrinsic benefits (e.g. fun) have a greater impact in encouraging system use (Beaudry and Pinsonneault 2010), particularly when the technology use is voluntary in nature (Webster et al. 1992). Kang et al. (2013) and Turel et al. (2012) highlight the importance of intrinsic benefits as the most significant motivations for using social networks. Intrinsic interest represents an intrinsic type of motivation (Webster et al. 1993), and research in IS has confirmed the significant effect of intrinsic interest in shaping people's use of an IS (Ali-Hassan et al. 2011; Scheepers et al. 2014). In a qualitative study of employees' use of an enterprise social software (ESS), Kügler et al. (2014) found hedonic use (i.e. the extent to which employees use an ESS for the purpose of entertainment) to be an important facet in ESS use. In professional virtual communities, Hung et al. (2015) found intrinsic benefits (i.e. enjoyment in helping others) to positively influence posters to share their knowledge. We argue that intrinsic interest has a greater influence on the poster user group.

Preece et al. (2004) identified five key reasons for lurking, of which “just reading/browsing is enough” was found to be the dominant reason for lurking in online discussion communities. This finding is echoed in the literature on online lurking as the reason for low levels of user participation (Sun et al. 2014). To account for this reason, we conceptualized “perceived fulfillment” as an intrinsic cost that could hinder user participation. We argue that perceived fulfillment is an important driver for lurking in ESNs. Therefore, we proposed:

Proposition 2 – Perceived intrinsic benefits and costs will impact ESN participation behavior, such that the perceived intrinsic cost of 'fulfillment' will encourage lurking behavior and the perceived intrinsic benefit of 'intrinsic interest' will encourage posting behavior.

Central and Peripheral Route Influences on Motivations

When sending persuasive messages (promotional messages), the source credibility plays an important role in persuading recipients, in particular individuals in the peripheral route who process information by their identification with the source (Bhattacharjee and Sanford 2006). In contrast, in the central route, individuals rely more on the argument quality of such messages (Sussman et al. 2003). In the IS field, the

majority of ELM research has investigated the persuasive impact of information messages in training courses (e.g. Bhattacharjee and Sanford (2006) and Li (2013)) or recommendation emails received from colleagues (e.g. Sussman et al. (2003)). In corporate online communities, promotional messages are usually sent by emails and online posts (Yuan et al. 2013).

We argue that when management (e.g. ESN community managers) send promotional messages, the persuasive strength of the arguments embedded in these messages and the source characteristics (the competence, trustworthiness and authority of the source as perceived by the ESN users) will influence the four motivations to participate, that is, image and intrinsic interest as benefits and loss of knowledge power and fulfillment as costs. However, as discussed above, the literature has linked the argument quality and the source credibility of the message received by users to a limited number of user beliefs (e.g. usefulness). Therefore, we set out to examine all possible paths of influence and proposed:

Proposition 3 – The argument quality in promotional messages and the credibility of their source will impact users' perceived benefits (i.e. image, intrinsic interest) and costs (i.e. loss of knowledge power, fulfillment) of participation in the ESN, and such impact will differ across lurkers and posters.

Research Method

Design and Procedures

To evaluate the propositions in our research model, we chose an observational, cross-sectional survey design (Straub et al. 2004) because we were interested in assessing the prevalence of different forms of participation (posting vs lurking) and the respective motivations among users engaged in different projects and work tasks at a single point in time, namely, after the receipt of a promotional message.

We collected data by distributing an online survey to members of online communities within an Australian retail organization. The case organization had implemented Google+ as an enterprise-wide platform in early 2014. The company set up different communities for different members of the organization. In March 2015, we approached members of two of the online communities: Community A³ was set up exclusively for staff responsible for the operation of 897 grocery supermarket stores across all Australian states, while Community B was set up exclusively for staff responsible for the operation of 182 department stores across all Australian states. Overall, for Community A, the staff population was about 115,000, of whom 6000 were members of the Google+ community. For Community B, the staff population was about 17,000, of whom 2000 were members of the Google+ community.

Participation in the survey was voluntary. Owing to the unavailability of members' email addresses, a link to the online questionnaire was posted; we relied entirely on the invitation posted in the community for contacting participants. In the invitation post, we introduced ourselves, explained the purpose of the study and invited the community members (who had been using the platform for at least one month) to participate. To incentivize participation, we offered the chance to win an iPad Air 2 (in a separate database, the respondents were asked to voluntarily indicate their name and email addresses for this purpose) and we promised to make the results available to the community managers. The survey was online for one month. We posted one reminder a week after the initial invitation posting. Overall, 473 members participated in our survey. After screening the responses, 107 responses were discarded because of high percentages of incomplete answers. Overall, therefore, the response rate was about 6%, which was to be expected because, in active communities like Community A and Community B, such posts may easily go unnoticed.

Among the respondents, 90% worked at the operational level (i.e. store employees and line managers). Most of the respondents (80%) were members of Community A. Males and females were represented in approximately equal number, and the respondents' average age was 34. The mean for membership duration was 9.71 months. A large proportion of the respondents (79%) reported that they visited their online community at least once a day. Most of the respondents (86%) used Google+ for work-related matters.

³ To maintain confidentiality, the names of the company and the communities are not used.

With regard to promotional messages, the survey incorporated a definition of promotional messages and asked whether or not the respondents had ever received a promotional message. This part was added before we captured the respondents' experiences with the organization's promotional messages. We defined promotional messages as a persuasive communication sent by management through emails or online posts to encourage users' participation and to provide information about the Google+ communities (e.g. its benefits, qualities and recent topics discussed). Out of the 366 valid responses, 130 respondents reported that they had received such messages. Consequently, those 130 respondents were asked about their experiences with the organization's promotional messages in terms of the quality of these promotional messages and the credibility of their source.

Construct Measurement

All the constructs in our research model were measured reflectively (Gable and Sedera 2009). We used 7-point Likert scales ranging from “strongly disagree” to “strongly agree”, except for the two items (‘UseCreate’, ‘UseComm’) which were measured using a continuous scale (see Appendix). For the new construct of “perceived fulfillment”, measures were created and then validated before we included them in the survey instrument. Following the guidelines of Moore and Benbasat (1991), we first created a pool of items from the lurking literature (e.g. Preece et al. (2004)). We employed a panel (of five PhD students who majored in IS-related research and were familiar with ESNs) to review the pool of items for the purpose of: (i) checking the face validity to make sure they were the right measures (Recker 2013), (ii) identifying any problems in wording, meaning, readability or repeated questions, and (iii) checking the completeness and accuracy of the items. We used the remaining items and ran a Q-sort exercise to improve the construct validity (Moore and Benbasat 1991). The remainder of the measurement items were adapted from previously-validated measures in the literature (see Appendix). We conducted a series of pre-tests, followed by a pilot test with 50 participants of an ESN (i.e. a corporate Google+ community). In turn, we changed some items in our scale before we launched the main survey.

Data Analysis

We used the partial least square technique of structural equation modeling (Hair Jr et al. 2013) in the SmartPLS 3 software to evaluate the measurement properties and test our propositions. Our strategy for data analysis was as follows. First, we examined the validity and reliability of our measurements. Next, we estimated a structural model corresponding to our research model (Figure 1 above). This allowed us to examine the influence of the routes on motivations, and on participation behavior, in turn. Then, we examined posters vs. lurkers in particular. To that end, we performed two post-hoc analyses: one logistic binary regression and one multi-group analysis of our structural model. We report on each step, in turn.

Measurement Validity and Reliability

The descriptive statistics of our scale, factor loadings, average variance extracted (AVE) values and construct reliability test using Cronbach's alpha are presented in Appendix. All our reflective measures met the criteria for convergent validity: all the factor loadings exceeded 0.7; while the constructs' AVE>0.50 (Fornell and Larcker 1981) and the Cronbach's alpha values exceeded 0.7 (Nunnally and Bernstein 1994). The AVE test showed that the constructs had acceptable discriminant validity (Fornell et al. 1981) (see Table 3).

| | AQ | IMG | INT | LOKP | FUL | Participation | SC |
|---------------|-------|-------|--------|--------|--------|---------------|-------|
| AQ | 0.928 | | | | | | |
| IMG | 0.121 | 0.918 | | | | | |
| INT | 0.269 | 0.454 | 0.959 | | | | |
| LOKP | 0.109 | 0.198 | -0.070 | 0.943 | | | |
| FUL | 0.157 | 0.241 | 0.232 | 0.153 | 0.917 | | |
| Participation | 0.112 | 0.356 | 0.491 | -0.114 | -0.053 | 0.890 | |
| SC | 0.626 | 0.116 | 0.322 | -0.044 | 0.110 | 0.175 | 0.899 |

Evaluating Motivations to Participate in an ESN

In the next step, we estimated the structural model. Consistent with our propositions, we included the paths between (a) the central and peripheral route constructs and all four motivations, and (b) all four motivations on our dependent variable *ESN participation*. The results on the standardized path coefficients and path significances are presented in Table 4. Overall, the model accounted for 31.2% of the variance in participation.

After examining the impact of extrinsic benefits and costs on users’ participation (Proposition 1), image was found to have a significant positive impact on participation (encouraging posting), while loss of knowledge power was found to have a significant negative impact on participation (encouraging lurking). Moreover, in relation to the impact of intrinsic benefits and costs on users’ participation (Proposition 2), we found support for both polarized pairs. Fulfillment was found to have a significant negative impact on participation (encouraging lurking), while intrinsic interest was found to have a significant positive impact on participation (encouraging posting) (refer to Table 4).

To examine whether promotional messages influenced the four motivations to participate (Proposition 3), we tested all possible paths of the argument quality and source credibility of these messages vs members’ perceived image, intrinsic interest, loss of knowledge power and perceived fulfillment. Altogether, four of the eight relationships were found to be significant. Argument quality was found to have a significant positive impact on members’ perceived costs (LOKP, FUL), while source credibility was found to have a significant positive impact on members’ perceived benefits (INT) but a negative impact on members’ perceived costs (LOKP) (refer to Table 4). The next section provides details of the comparison between the poster and lurker user groups.

| Proposition | | Results |
|--|------|---------------------------|
| IMG => Participation | | $\beta = 0.21^{***}$ |
| INT => Participation | | $\beta = 0.388^{***}$ |
| LOKP => Participation | | $\beta = (-) 0.102^*$ |
| FUL => Participation | | $\beta = (-) 0.192^{***}$ |
| AQ => | IMG | $\beta = 0.073$ |
| | INT | $\beta = 0.111$ |
| | LOKP | $\beta = 0.227^{***}$ |
| | FUL | $\beta = 0.151^*$ |
| SC => | IMG | $\beta = 0.078$ |
| | INT | $\beta = 0.252^{***}$ |
| | LOKP | $\beta = (-) 0.188^{**}$ |
| | FUL | $\beta = 0.025$ |
| (Participation $R^2=0.312$) *** $p<0.001$, ** $p<0.01$, * $p<0.05$ Shaded cells indicate significant path coefficients and differences. Image (IMG), Intrinsic interest (INT), Fulfillment (FUL), Loss of knowledge power (LOKP), Argument quality (AQ), Source credibility (SC) | | |

Comparing Posters and Lurkers

In our second analysis, we sought to differentiate posters and lurkers and their motivations. To that end, we defined lurkers as *members who did not create any content (post or comment) in the last month*. Conversely, we defined posters as those members *who posted or commented at least once in the last month*. We examined the scores on our variables UseCreate (mean=4.71 and st.dev.=9.09) and UseComm (mean=6.97 and st.dev.=18.09). We found that 79% of the respondents visited their online community at least once a day. We identified 78 lurkers and 212 posters. For the statistical analysis we wanted to best distinguish the lurker and poster user groups; therefore, we did not consider a number of respondents (76) who only commented once but did not post in the last month as posters. A similar approach was used by Hung et al. (2015) and Rau et al. (2008).

Using the binary variable poster/lurker, we then performed a stepwise binary logistic regression (Pallant 2013) using SPSS 22.0 software to examine the relative importance of the four motivations (i.e. image and intrinsic interest as benefits, and loss of knowledge power and fulfillment as costs) to posting/lurking behavior. We used the composite scores of the four motivations as the independent variables and the binary posting/lurking as the dependent variable. Table 5 summarizes the results. The Hosmer–Lemeshow goodness-of-fit test showed that our regression model was significantly better at determining posting/lurking than random chance. The fit results were acceptable (Hosmer and Lemeshow 2000). Aligning with Propositions 1 and 2, the extrinsic and intrinsic benefits (IMG, INT) were significant predictors of posting, while the extrinsic and intrinsic costs (FUL, LOKP) were significant predictors of lurking.

Table 5. Stepwise Binary Logistic Regressions (Lurkers n=78 & Posters n=212)

| Motivations | Beta | SE | Wald | Sig. | Exp (B) |
|---|-----------|-------|--------|------|---------|
| IMG | 0.404 | 0.110 | 13.404 | .000 | 1.498 |
| INT | 0.683 | 0.128 | 28.567 | .000 | 1.980 |
| LOKP | (-) 0.333 | 0.120 | 7.714 | .005 | .717 |
| FUL | (-) 0.283 | 0.116 | 5.974 | .015 | .754 |
| Model fit on posting/lurking: (-2 Log Likelihood=256.13), (Cox & Snell R ² =0.245), (Nagelkerke R ² =0.356) The Hosmer-Lemeshow goodness-of-fit (chi-square, p) = (12.69, p=0.123) | | | | | |
| Image (IMG), Intrinsic interest (INT), Fulfillment (FUL), Loss of knowledge power (LOKP) | | | | | |

We then compared the significance of the path coefficient differences among the lurker and poster user groups in our structural model. To that end, we ran a multi-group analysis (MGA) (Rigdon et al. 2010) to perform a pair-wise comparison of the bootstrap estimates for the overall structural model. A similar approach was used by Recker and La Rosa (2012). For this analysis, we used a subsample of 130 members (out of 366), namely, those who had received and experienced promotional messages. Because of the size of our subsample, we ran two separate MGA of the structural model: one for argument quality (AQ) and one for source credibility (SC). Table 6 summarizes the results. In line with our expectations in Proposition 3, the impact of argument quality and source credibility on all four motivations was different between the posters and lurkers. Furthermore, the impact difference was sometimes significant.

SC and AQ had a mixed impact on IMG, INT, LOKP and FUL across the lurkers and posters. In the lurker group, AQ significantly increased FUL and IMG, while SC only increased lurkers’ perceived FUL. In the poster group, AQ and SC significantly increased the posters’ perceived INT. We found the difference in the impact of AQ on IMG partially significant (p=0.07), while the rest were not significant. On the other hand, the differences in the impact of SC on IMG and FUL were significant (p=0.05 and p=0.02, respectively), while the impact of SC on INT and LOKP was not significantly different (refer to Table 6). In the next section, we provide a discussion of our results.

Table 6. Multi-Group Analysis Results

| Propositions => | | Lurkers (n=78) β = | Posters (n=212) β = | Lurkers vs Posters |
|--|------|--------------------------|---------------------------|--------------------------|
| AQ | IMG | 0.230* | 0.079 | 0.07 |
| | INT | 0.118 | 0.314*** | 0.94 |
| | LOKP | 0.182 | 0.107 | 0.23 |
| | FUL | 0.365*** | 0.162 | 0.10 |
| SC | IMG | 0.278 | 0.068 | 0.05 |
| | INT | 0.218 | 0.361*** | 0.89 |
| | LOKP | 0.113 | -0.025 | 0.17 |
| | FUL | 0.448*** | 0.152 | 0.02 |
| *** p<0.001, ** p<0.01, * p<0.05 Shaded cells indicate significant path coefficients and differences. Image (IMG), Intrinsic interest (INT), Fulfillment (FUL), Loss of knowledge power (LOKP) Argument quality (AQ), Source credibility (SC) | | | | |

Discussion

We set out to evaluate three propositions about the motivations for posting and lurking behaviors in ESNs and the influence of promotional messages on these motivations and behaviors. Table 7 summarizes the insights gained into our propositions.

| Table 7. Findings on the Propositions | |
|--|--|
| Relevant Empirical Results | Interpretation |
| <p><i>Proposition 1</i> Extrinsic costs and benefits significantly impact participation behavior.</p> <ul style="list-style-type: none"> - IMG ($\beta=0.404$, $p=0.000$) is the most important extrinsic predictor of participation. - Lurking is motivated by high levels of the perceived extrinsic cost (LOKP), whereas - Posting is motivated by high levels of the perceived extrinsic benefit (IMG). | <p>We find the extrinsic and intrinsic benefits (image and intrinsic interest, respectively) to be significant predictors of posting while the intrinsic and extrinsic costs (fulfillment and loss of knowledge power, respectively) are significant predictors of lurking. These results suggest that participation behavior is a dual factor concept with the different ends of the continuum being influenced by orthogonal antecedents.</p> |
| <p><i>Proposition 2</i> Intrinsic costs and benefits also significantly impact participation behavior.</p> <ul style="list-style-type: none"> - INT ($\beta=0.683$, $p=0.000$) is the most important intrinsic predictor of participation. - Lurking is motivated by high levels of the perceived intrinsic cost (FUL), whereas - Posting is motivated by high levels of the perceived intrinsic benefit (INT). | |
| <p><i>Proposition 3</i> The argument quality (AQ) and the source credibility (SC) impact users' motivations.</p> <ul style="list-style-type: none"> - (P3-1) In all groups, AQ significantly increases users' perceived costs (LOKP, FUL) while SC significantly increases users' perceived benefit (INT) but decreases users' perceived cost (LOKP). | <p>The results suggest that promotional messages may have a contradictory effect in relation to the intended effect:</p> <p>When members perceive the content of promotional messages to be of great value (informative, valuable and persuasive), users may wonder why (despite all these good functionalities) others are not engaging, which in turn may lead to perceptions of fear of losing their knowledge. In addition, when members perceive high AQ, they might find it too "risky" to post content to the community.</p> <p>On the other hand, a higher perception of source credibility is good news to ESN community managers. When credible people or experts send promotional messages, (1) members may think if experts rally for the ESN and they are not afraid of sharing, it should be okay to participate (decreased LOKP) and (2) members are excited to participate (increased INT).</p> |
| <ul style="list-style-type: none"> - (P3-2) In the lurker group, AQ significantly increases lurkers' perceived cost (FUL) and benefits (IMG) while SC significantly increases their perceived cost (FUL). | <p>When lurkers perceive the content of promotional messages to be of great value, they might find it too "risky" to post content to the community. Contrary to what ESN community managers are hoping for, the SC increases the perceived fulfillment.</p> <p>However, AQ increases lurkers' perceived image showing that these messages are working in relation to making lurkers see more image enhancement benefits of participation.</p> |
| <ul style="list-style-type: none"> - (P3-3) In poster group, AQ and SC significantly increase posters' perceived benefit (INT). | <p>The AQ and SC of promotional messages interest/excite posters and make them more enthusiastic to post.</p> |

Our findings suggest, foremost, the appropriateness of our theoretical lens in addressing the research objectives. For instance, the impact of source credibility on users' beliefs (refer to Table 4 above) suggests that a user in the peripheral route tends to respond positively to promotional messages. A higher perception of the message source characteristics increases users' perceived benefit (intrinsic interest) but decreases users' perceived cost (loss of knowledge power). This suggests that credible people or experts who send promotional messages play a pivotal role in shaping the intended effect that ESN community managers are hoping for. This is consistent with Petty and Cacioppo (1981, 1986) in that, in the peripheral route, people are more likely to be persuaded by cues such as the likeability of or affinity toward the endorser or message source.

Our research makes several contributions. First, our findings further develop an understanding of users' perceived benefits and possible barriers to content creation in ESNs. Second, we provide a better understanding of the influences on employees' posting and lurking behaviors in an ESN. Using the theoretical lens of the ELM (Petty et al. 1986), we demonstrate that persuasion-based interventions (i.e. promotional messages) do in fact affect posters' and lurkers' salient beliefs about participation in ESNs. Our analyses clarify the different pathways through which these effects manifest. A third key contribution is the differentiation of motivation perceptions between lurkers and posters. Our results suggest that posters and lurkers in ESNs are motivated and hindered by different factors.

In terms of practical contributions, our study benefits practitioners by enabling them to identify the direction and level of influence of already-implemented interventions (i.e. promotional messages) with the aim to boost employees' participation. Our research serves to evaluate communication strategies aimed at improving user participation. We found that promotional messages did not – always – yield the hoped-for results. Instead, some messages were shown to have an adverse effect in that they increased lurkers' perceived costs. By contrast, we found that active posters did not react negatively to the messages; in fact, the messages encouraged them to be more enthusiastic to post (i.e. they increased the posters' perceived intrinsic interest). In turn, ESN community managers may find that promotional messages are “preaching to the choir” and are ineffective in reaching the silent outsiders. One implication for ESN community managers could be to try to alter the content of these messages to position the ESN as a favorable environment for lurkers. Such messages could, for example, provide reassurance to members that there are no negative repercussions of participation.

Limitations

We identify several limitations in this study. First, we did not set out to compose a complete model with all the possible explanatory factors of lurker and poster behaviors. Therefore, many other intrinsic and extrinsic benefits and costs could be investigated to see whether or not our proposed routes have an influence on them. We focused on two polarized pairs of motivational beliefs, noting that motivation research also provides more nuanced differentiations. We also focused on two core concepts from the ELM, namely, argument quality and source credibility, noting that the ELM may not be the only theoretical lens through which to elucidate the processes that influence users' beliefs and participation in ESNs. In addition, we could not assess whether or not the argument quality of the promotional messages had been meaningfully evaluated by users (i.e. whether the users had closely examined the content). A control question about the in-depth evaluation of the content of the promotional messages could be added to the survey.

Second, other environmental, organizational and technological factors that were not covered in the scope of this study might also influence lurking and posting in ESNs. For instance, future research could explore cultural backgrounds. In addition, compliance-based interventions such as management pressure and social media policy could be examined to observe how effective they are in getting lurkers to comply with the firm's expectations and to incentivize ESN participation. Third, we relied on self-report measures for the constructs in our research model. There may be some bias in this approach, in that the respondents may have over- or under-estimated their participation. However, we mitigated self-report bias by using multiple self-report measures of participation on a variety of scales. We compared these metrics and found them to be reliable. Our survey was also limited in that we conducted a cross-sectional data collection. An alternative could have been designed on the basis of a longitudinal setup to examine posting and lurking behavior over time (e.g. before and after an intervention). This was not possible due to constraints set by the case organization.

Finally, the fourth limitation of our work underlines the need for further research to investigate more nuanced differentiations of participant roles (e.g. frequent versus infrequent posters, true versus active lurkers (Kim 2000)). Our analysis was based on the commonly-accepted dichotomy, but we envisage that it would be useful to consider a more nuanced typology of users.

Conclusion

This study bridges the gap between the practical application of best practices and scientific research by providing a theoretical model and empirical evidence to help community managers better understand why, how and in what conditions employees participate in ESNs. To the best of our knowledge, there has not been an empirical examination of persuasive-based management interventions and their analogous effects on posters' and lurkers' perceptions and participation behaviors in ESNs. We provide a detailed understanding of how and why corporate staff use (or do not use) social networks, and how these behaviors change when persuasion interventions are applied. In turn, our research contributes a better understanding of the behaviors and consequences of ESN-in-use and also a more fine-grained discrimination of the profiles of posters versus lurkers and the different roles they play in such communities.

Appendix

| Measurement Instrument, Item and Construct Statistics | | | | | | |
|---|------------|------|------|---------|------|------------------|
| | Indicator | Mean | SD | Loading | AVE | Cronbach's Alpha |
| Image (IMG) (Wasko et al. 2005) <ul style="list-style-type: none"> ▪ I post my opinions on Google+ to earn respect from others. ▪ I post my opinions on Google+ to improve my reputation. ▪ I feel that participation improves my status on Google+. | IMG1 | 3.44 | 1.73 | 0.90 | 0.84 | 0.91 |
| | IMG2 | 3.51 | 1.84 | 0.95 | | |
| | IMG3 | 3.89 | 1.86 | 0.90 | | |
| | | | | | | |
| Intrinsic interest (INT) (Webster et al. 1993) <ul style="list-style-type: none"> ▪ Posting on Google+ is interesting. ▪ It is fun to post on Google+. | INT1 | 4.83 | 1.56 | 0.96 | 0.92 | 0.91 |
| | INT2 | 4.67 | 1.62 | 0.96 | | |
| Loss of knowledge power (LOKP) (Kankanhalli et al. 2005) <ul style="list-style-type: none"> ▪ When I post on Google+, I lose my unique value in the organization. ▪ Posting on Google+ makes me lose the value of my knowledge that makes me stand out with respect to others. ▪ Posting on Google+ makes me lose my power base in the organization. | LOKP1 | 2.57 | 1.54 | 0.90 | 0.89 | 0.94 |
| | LOKP2 | 2.47 | 1.50 | 0.96 | | |
| | LOKP3 | 2.30 | 1.45 | 0.96 | | |
| | | | | | | |
| Fulfillment (FUL) (self-developed) <ul style="list-style-type: none"> ▪ For me, just reading/browsing on Google+ is enough. ▪ I feel reading adequately meets my purpose for using Google+. ▪ By just reading, I feel my reasons for using Google+ are adequately met. | FUL1 | 4.50 | 1.67 | 0.84 | 0.84 | 0.91 |
| | FUL2 | 4.40 | 1.54 | 0.95 | | |
| | FUL3 | 4.32 | 1.63 | 0.95 | | |
| | | | | | | |
| Participation (The dependent variable) <ul style="list-style-type: none"> ▪ During the past month, how many posts created by others did you comment on Google+? ▪ During the past month, how many posts did you create on Google+? ▪ I post or comment on Google+. | UseComm* | 0.56 | 0.49 | 0.86 | 0.79 | 0.87 |
| | UseCreate* | 0.49 | 0.45 | 0.91 | | |
| | RevPostF | 3.51 | 1.66 | 0.90 | | |
| | | | | | | |

| | | | | | | |
|---|-----|------|------|------|------|------|
| Argument quality (AQ) (Bhattacharjee and Sanford 2006) <ul style="list-style-type: none"> ▪ The information in the Google+ promotional messages is informative. ▪ The information in the Google+ promotional messages is valuable. ▪ The information in the Google+ promotional messages is persuasive. | AQ1 | 4.68 | 1.48 | 0.93 | 0.86 | 0.92 |
| | AQ2 | 4.56 | 1.48 | 0.94 | | |
| | AQ3 | 4.26 | 1.43 | 0.91 | | |
| Source credibility (SC) (Bhattacharjee and Sanford 2006) <i>The person who usually sends these messages....</i> <ul style="list-style-type: none"> ▪ .. is trustworthy. ▪ .. is credible. ▪ ..is experienced on Google+. ▪ ..appears to be an expert on Google+. | SC1 | 5.05 | 1.38 | 0.87 | 0.81 | 0.92 |
| | SC2 | 5.05 | 1.40 | 0.93 | | |
| | SC3 | 5.10 | 1.45 | 0.93 | | |
| | SC4 | 4.87 | 1.46 | 0.87 | | |

* Normalized using a log10 transformation.

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