Peripheral, central and coercive routes for promoting Enterprise Social Networks

Research-in-Progress

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Abstract

Organisations employ Enterprise Social Networks (ESNs) (such as Yammer) expecting better intra-organisational communication and collaboration. However, ESNs are struggling to gain momentum and wide adoption among users. Promoting user participation is a challenge, particularly in relation to lurkers – the silent ESN members who do not contribute any content. Building on behaviour change research, we propose a three-route model consisting of the central, peripheral and coercive routes of influence that depict users' cognitive strategies, and we examine how management interventions (e.g. sending promotional emails) impact users' beliefs and (consequent) posting and lurking behaviours in ESNs. Furthermore, we identify users' salient motivations to lurk or post. We employ a multi-method research design to conceptualise, operationalise and validate the research model. This study has implications for academics and practitioners regarding the nature, patterns and outcomes of management interventions in prompting ESN.

Keywords

Enterprise social network, elaboration likelihood model, social influence theory, lurkers, posters

INTRODUCTION

A new class of information technology, commonly known as Enterprise Social Networks (ESNs), has gained prominence in contemporary organisations (Qualman 2012). An ESN is a private social network (e.g. Yammer) that facilitates short message communication and the establishment of social connections within organisations (David et al. 2013). It allows organisations to create a space in which co-workers can connect, collaborate and exchange information (Zhao and Rosson 2009). Contrary to the wide proliferation of public social networks like Facebook, employees have demonstrated a slow uptake of ESNs, with recent studies showing that many ESN initiatives struggle to gain momentum and wider adoption by users (Kügler and Smolnik 2014; McAfee 2009). In settings that have few or no contributors, ESNs are left striving for content (Matzat and Rooks 2014). Thus, A growing body of academic literature has investigated the behavioural issues related to employees' adoption and use of ESNs (e.g. Kügler et al. (2012), Richter et al. (2013)). However, research on management interventions (e.g. sending promotional emails) to promote users' online participation in a work setting is still scarce (Alarifi and Sedera 2013; Schneider et al. 2013). We know very little about the nature, patterns and outcomes of these interventions in prompting users' online participation.

Lurkers are the silent members of the online community, who usually do not contribute any content (Nonnecke and Preece 2000). At the same time, they constitute the vast majority of any online community (Sun et al. 2014). Researchers are fervent about why posters (active members who create content on a regular basis) use or share their knowledge on ESNs; however, we know very little about lurkers' motives (Lai and Chen 2014). In online communities, user motivations to participate differ across user groups (Zhang et al. 2013) and therefore exert varying degrees of influence on lurkers and posters. For example, if a user fears aggressive or hostile responses, he or she is less likely to participate even though motivated by other factors (e.g. seeking reputation) (Park et al. 2014). Furthermore, to enhance ESN members' participation, understanding the types of interventions to use (e.g. promotional emails) and the best ways to exercise interventions is an attractive research area for both academics and practitioners (Alarifi and Sedera 2013) particularly when the technology use is voluntary in

nature. Practitioners (e.g. Pisoni (2013)) have proposed interventions to enhance user engagement in ESNs (e.g. management involvement, social media policy). However, these suggestions require an appropriate empirical and theoretical base.

Scholars in the field of behaviour change research stress that changes in individuals' beliefs and (consequent) behaviours undergo two key processes, namely, persuasion-based and compliance-based routes[1] (Wang et al. 2013). In this study, we employ two behavioural change theories from social psychology: (i) the social influence theory (Kelman 1958) to present the compliance-based route, and (ii) the elaboration likelihood model (ELM) (Petty and Cacioppo 1986) to present the persuasion-based route. We propose a three-route theoretical model consisting of the central route and peripheral route (using ELM) and coercive route (using social influence theory) that can influence users' beliefs and participation behaviour in the ESN. These theories were specifically chosen because: (1) they relate to influence processes and the impacts of interventions on human beliefs and behaviour, and (2) they help to explore and explain the "black box" of influence within the online participation context, namely, understanding what type of interventions leads to what outcome in what setting across different users (i.e. lurkers and posters).

Our objectives are to investigate certain interventions to understand which interventions have more effect and which interventions have less effect on the motivation-participation relationship by quantifying and comparing the correlation metrics between interventions (and these relationship systems). Further, in a post-implementation phase, we investigate lurking and posting antecedents. We present lurking behaviour as a "reception-only" participation (Han et al. 2013). To meet these objectives, we ask the following research questions: (RQ-1) What are the salient drivers of lurkers' and posters' participation in ESNs[2]? and (RQ-2) How do central, peripheral and coercive routes influence employees' perception of the ESN and posting and/or lurking behaviour? We employ a multi-method research design (Morse 2003) to conceptualise, operationalise and validate the research model. Initially, we performed a comprehensive cross-disciplinary literature review. Then, in our exploratory phase, we conducted two studies (16 interviews and two focus groups). Driven by the findings from the exploratory phase and theoretical lenses, we constructed the research model. Next, we will collect self-reported and objective (access log) data from a firm-hosted ESN as our final validation for the confirmatory phase.

Several gaps, which this study seeks to close, were identified. First, the current implementations of ESNs focus mainly on posters, without considering lurkers' motives and usage behaviour. Second, there is a need to look beyond the motivations of employees' initial acceptance of the ESN, a topic that has been largely under-investigated (Zhang et al. 2013). Third, understanding how management interventions (employed to enhance employees' participation) influence both posters and lurkers and concomitantly understanding the influence processes that shape ESN users' beliefs and behaviours is still a niche area in research. Having introduced the domain of enquiry, the remainder of this paper is organised as follows. First, we review the theoretical foundation of this research followed by an overview of the research conceptual model and propositions. We then present the research methodology. In the final section, we draw the expected implications from the research, identify the limitations of the study and highlight directions for future work.

THEORETICAL FOUNDATION

Theories of Change Behaviour

For decades, extensive research has been published on behaviour change. Examples include research on preventing problematic Internet use (Turel et al. 2014) in the IS field and on encouraging exercise (Lin et al. 2006) and healthy eating (Kretzer and Larson 1998) in public health. Several theoretical approaches 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 behaviour (MacInnis et al. 1991), and general deterrence theory (Straub and Welke 1998). Such models propose different understandings of how management interventions (e.g. promotional emails, written management pressure techniques) could inform and/or persuade users to behave in a particular manner. We employ two theories from social psychology – the social influence theory (Kelman 1958) and the ELM (Petty and Cacioppo 1986) – and propose central, peripheral and coercive routes to understand how management interventions will influence users' perceptions and lurking and posting behaviours in an ESN.

Based on persuasion theory, the ELM posits that human attitudes could be changed by two "routes" of influence, namely, the peripheral route and central route (Petty and Cacioppo 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) (Bhattacherjee and Sanford 2006; Petty and Cacioppo 1986). In the central route, the person

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[1] Throughout the paper, we use the term "routes" to denote influence processes that shape users' belief(s).
[2] Throughout this paper, we discuss the function of microblogging services in the context of ESN.

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 behaviour" (Bhattacherjee and Sanford 2006). In the peripheral route, which involves less cognitive effort, "subjects rely on cues regarding the target behaviour" (Bhattacherjee and Sanford 2006). Examples of the relevant information to be communicated (Nuwangi et al. 2014) 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, individuals in the peripheral route rely on cues in messages regarding the target behaviour (such as whether or not a promotional email was sent by a manager or an expert, or the number or status of the people copied into the email), rather than the quality of the information presented in the message (Bhattacherjee and Sanford 2006).

Since different individuals are influenced by different things, it can be expected that persuasive techniques alone will not align ESN users' attitudes and behaviours with the firm's expectations. Building on Kelman (1958) conceptualisation of the compliance, identification and internalisation processes of attitude change, and distinct and separate from identification and internalisation-based social influence, compliance-based processes are likely to be effective to get people to comply with the firm's expectations. Based on Kelman's conceptualisation of compliance, we posit the coercive route to align users' behaviours to participate in the ESN. Compliance occurs when individuals perceive pressure to behave in a certain way, to either gain rewards or avoid punishment (Wang et al. 2013). Consistent with other IS researchers (e.g. Venkatesh and Davis (2000)), certain types of social and managerial pressure could influence individuals' behaviours to ensure users react in a desired fashion (Boss et al. 2009; Nuwangi et al. 2013). For example, in the ESN context, a manager might mandate that each employee must post a certain number of entries each month, or broadcast their project deliverables.

Lurking and Posting Behaviour

Previous studies have generally looked at the ESN population as a single group without making a distinction between user groups. In online communities, there are several types of users: (i) active users or posters , (ii) passive users or lurkers (iii) initial posters ,and (iv) active lurkers (Kim 2000). In most cases, lurkers have never posted in the community to which they belong; rather, they browse through others' posts and try to find the answer to their questions (Muller et al. 2010). However, they dominate such communities in terms of membership (Preece et al. 2004). According to the "90-9-1" principle of collaborative websites, 90% of the members only read others' content (i.e. lurk), 9% of the members edit content, and 1% of the members actively create new content (i.e. post) (Arthur 2006). There are many definitions of lurkers. For example, Han et al. (2013) defined lurkers as members who never post more than one message in 6 weeks. In this study, we adopt Preece's (2000) definition of a lurker as a person who maintained a zero posting frequency in the last three months. Lurkers don't create content in the ESN. In other words, they do not post, comment or share content, thereby leaving no trace of their activities. On the other hand, a member who posted at least once during the past three months is considered to be a poster.

User motivations to participate (or not participate) could be very different among user groups (Alarifi and Sedera 2013; Zhang et al. 2013). For example, in a landmark study of posters' knowledge contribution in electronic networks of practice, Wasko and Fara (2005) found that posters mainly contributed knowledge when they felt it would enhance their reputation, whereas a study by Preece et al. (2004) on lurkers found the main reasons for not participating were "no need" and "no encouragement" to post. Influencing users to participate could have different outcomes in different user groups. For example, interventions to enhance user participation (e.g. promotional emails, written or spoken management pressure techniques) 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.

RESEARCH MODEL

We developed a conceptual model addressing research questions. To understand how management interventions could influence employees' perceptions of ESNs and their posting and/or lurking behaviours, our conceptual model has two dimensions. The first dimension is the coercive route, based on the social influence theory. The second dimension comprises the central and peripheral routes, based on the ELM. We operationalise these routes as follows: (1) the central route is operationalised using argument quality and social media policy (SMP) effectiveness constructs, (2) the peripheral route is operationalised using source credibility, source authority and message characteristic constructs, and (3) the coercive route is operationalised using verbal and non-verbal management pressure (rule) constructs. The definitions of the constructs are presented in Table 1. Next, based on the exploratory phase findings (discussed below in research design) and research on the extrinsic and intrinsic values that motivate members to participate in online communities, we identified three salient motivational factors (Table 2) for lurking and posting behaviours. Figure 1 shows our view of the research conceptual model.
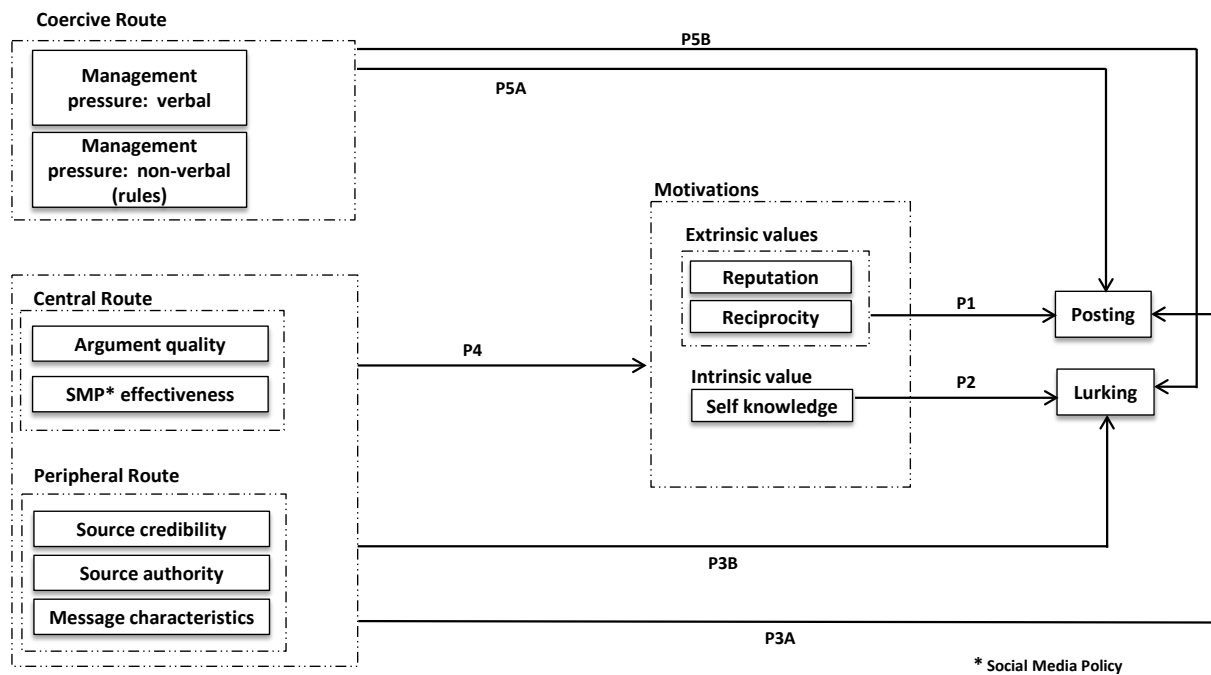
Figure 1: Research Conceptual Model

Table 1: Routes

Route	Construct	Definition	Reference
Central	Argument quality	The persuasive strength of the arguments embedded in the messages*	(Bhattacherjee and Sanford 2006)
	SMP effectiveness	The extent to which an employee believes that Social Media Policy (SMP) provides guidance on how best to engage in the ESN and provides protection from any misuse (e.g. improper content)	(Xu et al. 2011)
Peripheral	Source credibility	The extent to which a message* source is perceived to be believable, competent and trustworthy by ESN users	(Bhattacherjee and Sanford 2006)
	Source authority	The extent to which a message* source is perceived to be powerful (higher job ranking) by ESN users	(Bhattacherjee and Sanford 2006)
	Message characteristics	The extent to which a message* is perceived to be aesthetically pleasing to the eye	(Van der Heijden 2003)
Coercive	Verbal management pressure	The perceived pressure of management unwritten rules to participate in the ESN.	(Brown et al. 2010)
	Non-verbal management pressure (rules)	The perceived pressure of management rules to participate in ESN (e.g. all must upload presentations before any seminar).	(Boss et al. 2009)

* A promotional message is a message by management communicated through emails or online posts to (a) encourage users' participation in the ESN, and (b) provide information about the ESN such as its benefits, qualities and recent topics discussed.

Table 2: Motivations

Construct	Definition	Reference
Reputation	The extent to which an individual believes that posting on the ESN enhances his\her social self-concept in the ESN.	(Moore and Benbasat 1991; Wasko and Faraj 2005)
Reciprocity	The extent to which an individual believes that posting on the	(Kankanhalli et al. 2005)

Motivational Factors

Motivation theorists have repeatedly emphasised the effects of extrinsic and intrinsic motivations on individuals' behaviours. 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), 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 activity per se" (Davis et al. 1992), such as perceived fun. IS researchers have identified extrinsic and intrinsic motivations to create content in public and corporate online communities. In public use, the motivations have been found to include reputation (Wasko and Faraj 2005); in corporate use, motivations have been found to include personal brand building and reciprocity (Kankanhalli et al. 2005). A study by Huang et al. (2010) on the enterprise blog usage of 2396 employees over a 15 month period concluded that extrinsic factors were the salient drivers of blog posting and reading behaviour. In contrast, Nonnecke et al. (2000) found several facets of self-esteem to be the salient factors in lurking.

In the exploratory phase (see the discussion below on the study design for more details) of our research, we identified a number of extrinsic and intrinsic factors of which three factors were the prominent motivations (refer to Table 2) for members to either lurk or post in the ESN. We propose that reputations (Wasko and Faraj 2005) and reciprocity (Kankanhalli et al. 2005) (extrinsic factors) as the most important drivers for posting, whereas sense of self-knowledge (Bock et al. 2005) has a greater influence on lurking. Therefore, we propose:

> *Proposition 1 – Reputation and reciprocity have a significant positive effect on posting.*

> *Proposition 2 – Sense of self-knowledge has a significant negative effect on lurking.*

Central, Peripheral and Coercive Routes

In IS research, a number of studies have applied the elaboration likelihood model (ELM) to a mixture of adoption-related behaviours. For example, (i) Bhattacherjee and Sanford (2006) studied IT acceptance and explained how it was formed by processes of outer influence (i.e. training), (ii) Sussman and Siegal (2003) examined knowledge adoption and demonstrated how employees were influenced to adopt the recommendations they received in emails, and (iii) Luo et al. (2013) studied online recommendation systems to investigate the moderating impact of the recommendation source credibility. Other studies such as Venkatesh and Bala (2008) drew upon social influence theory to investigate interventions based on social influence in technology acceptance. By integrating the theoretical perspectives of social influence theory (Kelman 1958) and the ELM (Petty and Cacioppo 1986), we formulated the central, peripheral and coercive routes with the objective of understanding how management interventions influence employees' perception and participation behaviour for the effective use of ESNs. However, we are not aware of any study to date that has applied both lenses to study how management interventions enhance participation in online communities.

We employed the operationalisations of the peripheral and central routes by Sussman et al. (2003) and Bhattacherjee et al. (2006) which use the source credibility and source authority constructs for the peripheral route and the argument quality construct for the central route. When sending persuasive messages (e.g. promotional emails), the source credibility and authority play an important role in persuading recipients, in particular individuals in the peripheral route who process information by their identification with the source (Bhattacherjee and Sanford 2006). For example, in a study investigating promotional messages to encourage physical exercise in a university, Jones et al. (2003) found credible sources to have greater impacts on students than non-credible sources. In contrast, individuals in the central route rely more on the argument quality of such messages. In the IS field, the majority of ELM research has investigated the persuasive impact of information messages in training courses (e.g. Bhattacherjee et al. (2006), Li (2013)). Sending promotional messages through emails, online posts or online events (e.g. crowd sourcing events) is a commonly used intervention to influence employees to participate in ESNs (Yuan et al. 2013). Through the ELM lens, we argue that when management 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 users' beliefs and participation behaviours in the ESN.

Furthermore, we utilize two variables, namely, Social Media Policy (SMP) effectiveness in the central route and message characteristics in the peripheral route. Typically, the SMP of an ESN provides guidance on best practices for participation in the ESN community and protection from any misuse (e.g. improper content, bullying, harassment) (Cadell 2013). An SMP document could be viewed as a communication document that requires critical thinking (the central route) to scrutinise the relative merits of the system. Employees' beliefs in the effectiveness of the SMP to provide both guidance and protection will depend on the persuasive strength of the policy's content. The message characteristics variable - on the other hand – was selected based on Van der Heijden's (2003) conceptualisation of the visual attractiveness of websites. We argue that the design of promotional messages (i.e. electronic messages like emails) in terms of being aesthetically pleasing (the look and feel) is an important peripheral cue (Table 1 for constructs' definition). Thus, it is reasonable to propose:

> *Proposition 3A – The central and peripheral perceived level of persuasive messages[3] has a positive effect on posting.*
>
> *Proposition 3B – The central and peripheral perceived level of persuasive messages has a negative effect on lurking.*
>
> *Proposition 4 – The central and peripheral perceived level of persuasive messages has a positive effect on users' beliefs about the ESN.*

In general, users will comply when they perceive pressure to behave in a certain way, to either gain rewards or avoid punishment (Wang et al. 2013). In the coercive route, we propose two types of pressure: (i) verbal management pressure based on Brown et al.'s (2010) conceptualisation of "superior influence", and (ii) non-verbal management pressure (rules) based on Boss et al.'s (2009) conceptualisation of mandatoriness (Table 1). Previous studies in IS have highlighted that managers can influence employees' behaviour in a significant manner (e.g. influencing participation in online forums (Brzozowski et al. 2009) and facilitating system adoption (Salim 2013; Sawang et al. 2014). Venkatesh et al. (2008) emphasised that management interventions in the post-implementation phase are particularly relevant to creating favourable perceptions among users of voluntary systems. In line with these arguments, we propose:

> *Proposition 5A – Verbal management pressure and non-verbal management pressure (rules) have a positive effect on posting.*
>
> *Proposition 5B – Verbal management pressure and non-verbal management pressure (rules) have a negative effect on lurking.*

RESEARCH METHODOLOGY

Study Design

Our study employed the "multi-method design" approach of Morse (2003). Given the exploratory nature of the research questions, we began by conducting a comprehensive literature review across a number of disciplines such as psychology, cyber psychology, IS, management IS, marketing, management and business administration. An extensive review of theories related to the study was also conducted. Due to the lack of research on lurking behaviour on ESN and to provides a fuller picture in a work environment, we adopt focus group and case study methods, as they help in capturing relative richness of ESN' posing and lurking phenomenon as well as the context in which it is observed (Yin 2009). This method aligns well with our first research question.

We conducted a case study (Study 1) that included interviews with 16 employees about their ESN use (i.e., Yammer[4]). The objectives were to: (1) identify salient drivers to participate (or not) among lurkers and posters, and (2) understand which interventions did influence lurkers and posters in the ESN and how. The case organisation, Company A[5], was particularly appropriate for the purpose as it had used an ESN for knowledge sharing and collaboration for more than a year with over 1000 registered users. The difficulties encountered by the company in getting people to participate convinced us to select Company A as a target case. To get a deeper understanding of ESN usage patterns, we conducted (with a different sample) two focus groups with 20 Yammer users. After data analysis was performed, a preliminarily model was derived from our findings.

To further validate and refine our research model, we conducted another study (Study 2). Study 2 was conducted to content validate the salient drivers of ESN use among lurkers. Our rationale was that: (i) a large number of salient drivers among the lurker user group had been identified in Study 1 and it was difficult to determine which factors to include; (ii) for practical purposes, our final validation phase (survey) could not include copious factors just for lurkers; and (iii) the extant literature on lurkers was very limited especially in regard to the post-implementation phase. In this study, following the guidelines of Moore and Benbasat (1991), we first created a pool of items from (a) conventional lurking literature (e.g. Preece et al. (2004)) that as well repeatedly acknowledged by lurkers in Study 1, and (b) new items suggested by the respondents in Study 1. Then we employed one panel (five PhD students who majored in IS-related research and were familiar with ESNs) to review the pool of items for (i) face validity to make sure they were the right measures of lurkers' reasons to lurk (Recker 2013), (ii) the identification of problems in wording, meaning, readability or repeated questions, and (iii) the completeness and accuracy of the items. We used the remaining 42 items (lurking reasons) to develop a survey. New respondents in Company A (26 Yammer users who had not been included in Study 1 and identified - based on three months observation - as lurkers in Yammer) were asked to complete "Lurkers' reasons survey". The respondents were asked: *If you never or hardly ever post in Yammer, what are your reasons?* The respondents answered the question by grading 42 possible reasons on a Likert scale from 1 "strongly disagree" to 7 "strongly agree". For items suggested by the respondents in (Study 1), simple definitions were developed for

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[3] We use the term "persuasive messages" as a proxy for management's promotional messages.
[4] Yammer is the leading ESN used by more than 200,000 companies including 85% of the Fortune 500 (Yammer 2013).
[5] To maintain confidentiality, the name of the company is not used.

each group of items. For items derived from literature, the original definitions in literature were used. After data collection, we mapped all items to their proper constructs (based on their definitions). We then sorted the constructs from the most important to the least important based on the lurkers' responses. In the interest of parsimony, we did not include low scoring constructs. The variable used was 'sense of self-knowledge (Table 2).

Operationalisation of Constructs

Constructs' definition was presented above in Tables 1 and 2. Our measure items were adapted mainly and wherever possible from previously validated measures in the literature. Only a few modifications were made to suit our context. We employed two panel discussions with two IS professors and eight PhD students who majored in IS-related research to modify the measurement items to reflect the study context (Recker 2013). All the items used a Likert scale from 1 "strongly disagree" to 7 "strongly agree". The measurement items of our research model are available in Appendix 1. Finally, our dependant constructs (Posting and Lurking) are objective user data (include ESN users': number of logins, number of created posts, comments, and shared content, and the time spent; all within the three month timeframe) that we will acquire from the 'access-log' file of the firm-hosted ESN. However, objective user data are optional. Users will be asked after completing the online survey (to minimize bias) to provide their email to correspond this data with data obtained from survey.

IMPLICATIONS, LIMITATIONS AND FUTURE WORK

The primary objective of this study is not only to identify employees' salient motivations to lurk or post, but more importantly, to understand how commonly used interventions (e.g. promotional emails) influence – through our three proposed routes – employees' perceptions and posting and lurking behaviours. Our study is expected to have significant implications. First, it will provide a better understanding of the importance of intrinsic and extrinsic motivations in employees' posting and lurking behaviours in an ESN. Second, our study will further develop the concepts of persuasive and coercive influences in IS research. We will validate and evidence whether or not persuasive interventions (e.g. promotional emails) or coercive interventions (e.g. written or spoken management pressure techniques) can influence employees' perceptions and posting and lurking behaviours in ESNs through the central, peripheral and coercive routes. Such investigation will benefit practitioners to identify the level of influence of already implemented interventions aim to boost participation. Third, in response to calls by researchers (e.g. Kane et al. (2014)) to understand "how and why people use (or do not use) social networks and how this use results in performance variation between users", we provide the first study of posting and lurking behaviour in ESNs, noting that such an examination has been largely ignored in the research to date which has tended to analyse posting and lurking behaviours independently (Park et al. 2014).

This study is limited in five areas. Firstly, social influence theory and ELM may not be the only theoretical lenses through which to elucidate influence processes on users' beliefs and participation in ESNs. Secondly, other research strategies could mitigate some of the limitations in our research design. Thirdly, the objective was not to compose a complete model with all possible explanatory factors of lurker and poster behaviours. Therefore, many other intrinsic and extrinsic motivations could be investigated to see whether our proposed routes could have an influence upon, such as altruism. Fourthly, other environmental, organisational and technological factors that were not covered in the scope of this study might also influence lurking and posting in ESNs. Fifthly, we acknowledge that there is negative aspects of ESN use such as risks associated with excessive and improper use of ESN (e.g., time-loss) (Munnukka et al. 2014) which is not in the scope of our study.

Our preliminary study results (Study 1 & 2) are encouraging, and further work is underway (a pilot study) to test our instrument for the confirmatory phase. We will then validate our model and test our propositions using a survey as the final validation. At this stage, arrangements have been made with three large organisations in Australia to gather survey data. Two organisations use Yammer and one uses Google⁺ communities as its ESN. Three conditions formed the benchmarking for the selection of the organisations: (i) the organisation has used an ESN for at least one year and has at least 500 registered users, thus having a mature implementation; (ii) the organisation encourages ESN use to achieve certain objectives such as knowledge sharing (to enable us to investigate the type of interventions and its influence across lurkers and posters); and (iii) the organisation encounters problems in getting users to participate (to enable us to examine why lurkers are not motivated).

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APPENDIX 1 – MEASUREMENT ITEMS

Reputation adopted from (Park et al. 2014; Wasko and Faraj 2005) ▪ I post my opinions on Google⁺ communities to earn respect from others in Google⁺ communities. ▪ I post my opinions on Google⁺ communities to improve my reputation in Google⁺ communities. ▪ Because of my posting on Google⁺ communities, others in my organisation see me as a more valuable employee.
Reciprocity adopted from (Kankanhalli et al. 2005) ▪ When I post on Google⁺ communities, I expect somebody to respond when I'm in need. ▪ When I contribute knowledge to Google⁺ communities, I expect to get back knowledge when I need it. ▪ When I post on Google⁺ communities, I believe that my queries or information will be answered in future.
Sense of self-knowledge adopted from (Bock et al. 2005) ▪ My posts would help other members in the organisation solve problems. ▪ My posts would improve work processes in the organisation. ▪ My posts would increase productivity in the organisation.
A promotional message is sent by management through emails or online posts to (a) encourage users' engagement in XXX⁶ Google⁺ communities, and (b) provide information about Google⁺ such as its benefits, qualities and recent topics discussed. ***In relation to your experience with promotional communication messages, to what extent do you agree that …*** **Argument quality** adopted from (Bhattacherjee and Sanford 2006) ▪ The information provided by my organisation during the promotional communications was informative. ▪ The information provided by my organisation during the promotional communications was valuable. ▪ The information provided by my organisation during the promotional communications was persuasive. **Message characteristics** adopted from (Van der Heijden 2003) ▪ The layout of the communication messages is attractive. ▪ Overall, I find that communication messages look attractive. ▪ The colours that are used in the communication messages are attractive.
Your organisation develops and publishes a Social Media Policy (SMP) to provide guidance on how to best participate in the Google⁺, and provide protection from any misuse (e.g. improper content, and harassment). ***Please indicate the extent to which you agree or disagree with each of the following statements:*** **SMP effectiveness** adopted from (Xu et al. 2011) ▪ With the SMP, I believe that I am protected from any misuse by others (e.g. improper content, bullying, harassment). ▪ I believe that the SMP is an effective way to protect the Google⁺ communities from any misuse ▪ I believe that the SMP is an effective way to guide users on how to best use Google⁺ communities. ▪ SMP has an understandable, written sequence of steps that could be followed to ensure the best use of Google⁺
In relation to your experience with promotional communication messages, ***to what extent do you agree or disagree that the <u>person</u> who usually sends or organises these communication messages...*** **Source credibility** adopted from (Bhattacherjee and Sanford 2006) ▪ ....is trustworthy. ▪ .... is credible. ▪ .... appears to be an expert. **Source authority** adopted from (Hinkin and Schriesheim 1989) ▪ .... makes me feel that I have commitments to meet. ▪ .... makes me feel like I should satisfy my job requirements. ▪ .... makes me recognise that I have tasks to accomplish.
In this section, we capture your beliefs about different management techniques to get others to participate in Google⁺. ***Please indicate the extent to which you agree or disagree with each of the following statements:*** **Verbal management pressure** adopted from (Brown et al. 2010; Matzat and Rooks 2014) ▪ My manager suggests that I participate in Google⁺ communities. ▪ There is pressure from management to participate in Google⁺ communities. ▪ Management publically appreciates members who are very engaged in Google⁺ communities. ▪ Google⁺ administrators team send members who participate a private message stressing the great job he/she did. **Non-verbal management pressure (rules)** adopted from (Boss et al. 2009) ▪ If I do not post in Google⁺ communities for one month, I am required to explain why. ▪ There are rules that demand employees to post about certain tasks in Google⁺ communities. ▪ I believe my annual evaluation report (or Performance Planning and Review) reflects my posting activities in Google⁺. ▪ Overall, I believe it is required to regularly post in Google⁺ communities

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⁶ To maintain confidentiality, the name of the company is not used.