

**Are Norms Enough? The Role of Collaborative Norms
in Promoting Organizational Knowledge Seeking**

Gee-Woo Bock

Dept of Information Systems
School of Computing
National University of Singapore
3, Science Drive 2
Singapore 117543
Tel: (65) 6874-8978
Email: bockgw@comp.nus.edu.sg

Atreyi Kankanhalli

Dept of Information Systems
School of Computing
National University of Singapore
3, Science Drive 2
Singapore 117543
Tel: (65) 6874-4865
Email: atreyi@comp.nus.edu.sg

Sanjeev Sharma

ISV Developer Evangelist
Developer and Platform Evangelism
Microsoft Singapore Pvt. Ltd.
22-01, One Marina Boulevard
Singapore 018989
Tel: (65) 6882-8610
Email: t-sanjs@microsoft.com

Forthcoming: European Journal of Information Systems

Special Issue on: Organizational and Ethical Issues in the Information Society

Are Norms Enough?

The Role of Collaborative Norms in Promoting Organizational Knowledge Seeking

Abstract

Knowledge sharing, which is critical for the strategic utilization of knowledge resources for the benefit of the organization, can only take place when both knowledge contribution and knowledge seeking exist. However, most previous research has focused on only one side of this process – knowledge contribution motivations. This is despite the fact that various barriers to knowledge seeking and reuse exist, such as the effort required to seek relevant knowledge and the cost of future obligation. In overcoming such barriers, norms related to collaboration are considered to be important. However, little is known of how these norms operate in conjunction with other antecedents to influence individuals' knowledge seeking behavior. Addressing the knowledge gap, this study explores how collaborative norms in an organization impact knowledge seeking with regard to a common knowledge management system type – the electronic knowledge repository (EKR). For this purpose, we have developed a model and tested it through a survey of EKR users in knowledge intensive organizations. Our results indicate that collaborative norms positively impact individuals' knowledge seeking behavior through EKRs, both directly and through reducing the negative effect of future obligation on seeking. However, collaborative norms could also undermine the positive impact of perceived usefulness on knowledge seeking behavior. We identify other antecedents of knowledge seeking such as knowledge growth, resource facilitating conditions, and self-efficacy. Our findings explicate how norms can influence knowledge seeking behavior in conjunction with other antecedents. Implications for research and knowledge sharing practice are discussed.

1. INTRODUCTION

Knowledge management refers to structured activities aimed at improving an organization's capacity to acquire, share and use knowledge in ways that enhance its survival and success (Nevis 1995). Since knowledge is considered a key strategic organizational resource, knowledge management has received much attention in practice and research. While knowledge sharing is integral to knowledge management, it is usually the weakest link in knowledge management (O'Dell and Grayson 1998). This is because knowledge sharing does not come naturally to most people. In fact, hoarding knowledge and not accepting knowledge from others are natural tendencies that can be difficult to change (Davenport and Prusak 1998). Knowledge contributors may be inhibited from sharing their knowledge due to perceived loss of power, lack of time or incentives, and other barriers. Knowledge seekers may find it laborious to seek advice and may not want to obligate themselves to knowledge contributors. Therefore, it is vital to understand how knowledge contribution and seeking can be encouraged so that organizations may realize the benefits obtainable from knowledge sharing.

However, most research on knowledge sharing motivations has focused on knowledge contribution behavior (e.g., Orlikowski 1993; Constant et al. 1994; Wasko and Faraj 2000; Bock et al. 2005) based on the consideration that knowledge sharing is more intractable than knowledge seeking. This leaves a gap in our understanding of how knowledge seeking can be encouraged, and how barriers to knowledge seeking can be overcome (Markus 2001). Particularly, collaborative norms have been suggested as a means to promote both knowledge contribution and seeking (Orlikowski 1993; Goodman and Darr 1998). However, it is not clear how collaborative norms actually serve such roles, and little is known of how they operate in conjunction with other antecedents (both facilitators and inhibitors) in influencing individuals' knowledge seeking behavior.

Motivated by the above theoretical and practical concerns, this research attempts to investigate the influence of collaborative norms in shaping knowledge seeking behavior. In particular, we draw from previous research to identify the potential motivators and demotivators of knowledge seeking in the context of electronic knowledge repositories (EKRs). An EKR is an electronic store of content related to all subjects about which the organization maintains knowledge

(Liebowitz and Beckman 1998). EKR's include various types of repositories such as expert knowledge repositories, lessons learned databases, project websites, and shared whiteboards (Fulk et al. 2004). Technologies such as Microsoft SharePoint Services provide a platform for implementing EKR's. SharePoint allows employees to create websites for information sharing and document collaboration. SharePoint sites provide places to capture and share information and documents as well as for users to locate distributed information quickly and efficiently. Site content can be easily searched, and users can also receive alerts to tell them when existing documents and information have been changed, or when new information or documents have been added.

EKR's constitute the most common form of information technology (IT) supporting knowledge management i.e., knowledge management systems. Therefore they provide a suitable context for developing our model, which incorporates the antecedents of knowledge seeking behavior as well as the possible interactions between the antecedents and collaborative norms prevalent in an organization. We validate the model empirically through a survey of professionals in knowledge intensive organizations. Our objective is to further research on an important but under-explored area of knowledge seeking, and provide practical suggestions on how collaborative norms can enhance knowledge seeking for the benefit of the organization.

The next section reviews the literature on the theoretical perspectives for investigating knowledge seeking motivations. To study the role of collaborative norms, we adopt social capital theory as an analytical lens. We then develop our model through identifying the costs (demotivators) and benefits (motivators) of knowledge seeking, and propose the role of collaborative norms in accentuating or diminishing the influence of these antecedents. We present the results of our empirical validation of the model, and discuss the theoretical and ethical implications for knowledge sharing.

2. THEORETICAL PERSPECTIVES ON KNOWLEDGE SEEKING

Expectancy theory, learning theories, and technology adoption theories (in the context of knowledge sharing via electronic media) are theoretical perspectives that have been employed in the study of knowledge seeking motivations.

Expectancy theory proposes that people are motivated to act based on expectations of benefits and costs resulting from the act (Vroom 1964). In the context of knowledge seeking, Nebus (2004) made use of expectancy theory to propose that the relationship between perceived value from knowledge seeking and knowledge seeking behavior is moderated by perceived expectation of obtaining value. Perceived value from knowledge seeking depends on the contributor's (source's) expertise and credibility while perceived expectation of value is determined by trust, obligation, and the contributor's willingness to help. Perceived cost of seeking depends on monetary and time costs as well as the risk of seeking in terms of the distance between contributor and seeker.

Learning theories have approached knowledge seeking from the viewpoint of achieving learning outcomes. In this vein, Gray and Meister (2004) examined the effect of knowledge sourcing on individuals' learning outcome. They found that job characteristics (intellectual demands of the job) and individual characteristics (learning orientation) determine knowledge sourcing behavior, which in turn influences learning outcomes. Another study along this perspective (Borgatti and Cross 2003) examined the influence of the contributor-seeker relation on information seeking probability. It found that knowledge of the contributor, access to knowledge, and seeking cost are all determinants of information seeking probability and learning outcomes. In addition, it found that knowledge of the contributor and access to knowledge are moderators of the relationship between physical proximity of contributor with seeker and information seeking.

While the two perspectives discussed above have mainly been used to investigate dyadic knowledge seeking activities, technology adoption theories have studied knowledge seeking via electronic means. As an example of research along this perspective, Kankanhalli et al. (2005a) applied the theory of planned behavior (Ajzen 1991) with the task-technology fit model (Goodhue and Thompson 1995) to explain knowledge seeking behavior. They found that technology perceptions (perceived output quality) directly impact seeking behavior. Task factors (task interdependence and task tacitness) played a moderating role on the relationship between organizational factors (incentives and availability of resources) and knowledge seeking from repositories.

The above review evidences the study of individual (seeker and contributor), task, technology, and relational (contributor-seeker) characteristics with respect to knowledge seeking. It points to a lack of study of organizational social characteristics in this regard (Cross et al. 2001). While organizational structural characteristics, e.g., similarity of job functions, hierarchy, physical proximity, have been investigated in this regard (Cross et al. 2001), the impacts of social characteristics such as collaborative norms have hardly been studied. This is despite observations that organizational norms may be important in determining employee behavior in knowledge exchange (Goodman and Darr 1998; Jarvenpaa and Staples 2000). In examining the role of norms in influencing knowledge seeking, social capital theory may be a useful tool because it emphasizes the resources (social capital) embedded within networks of human relationships (Nahapiet and Ghoshal 1998). The theory posits that social capital in a network provides the conditions necessary for knowledge transfer to occur. Particularly, the relational dimension of social capital, which includes collaborative norms, is important in this regard (Nahapiet and Ghoshal 1998). Social capital factors such as norms have been suggested to play a moderating role in knowledge exchange (Constant et al. 1994; Jarvenpaa and Staples 2000). Thus, we may expect norms to moderate the influence of other antecedents on knowledge seeking.

3. RESEARCH MODEL AND HYPOTHESES

In line with the technology adoption perspective of knowledge seeking, this study uses the decomposed theory of planned behavior (DTPB) (Taylor and Todd 1995) in conjunction with social exchange theory to identify the antecedent controls, costs and benefits of knowledge seeking through EKR. DTPB has been useful in predicting technology use for various purposes (Legris et al. 2003), and offers the additional benefit of providing more concrete antecedents of technology use as compared to other technology adoption theories. In this paper, we use DTPB to conceptualize the controls that impact knowledge seeking via EKR. Social exchange theory is applicable in identifying the costs and benefits of knowledge seeking, since knowledge transfer can be viewed as a form of social exchange (Constant et al. 1994; Jarvenpaa and Staples 2000). As mentioned, based on social capital theory, we expect norms to play a moderating role on the influence of other antecedents on knowledge seeking via EKR.

3.1 Role of Norms

A norm represents a degree of consensus in the social system (Coleman 1990). Norms have the effect of moderating human behavior in accordance with the expectations of the group or community. The reason is norms exist only for behaviors that are important in organizations, and develop as individuals learn that certain behaviors help them function more effectively (Feldman 1984). Further, norms are deeply entrenched in organizational culture. Previous knowledge management literature has shown that norms of collaboration and teamwork (Goodman and Darr, 1998; Orlikowski 1993) can enhance exchange of intellectual capital. In the context of our study, we expect collaborative norms to have a positive impact on knowledge seeking through EKR. Hence, we hypothesize:

H1: Collaborative norms are positively related to EKR usage for knowledge seeking.

Since previous research has studied the moderating role of pro-sharing norms in governing EKR usage by knowledge contributors (Kankanhalli et al. 2005b), we also envisage a similar role for collaborative norms in the context of knowledge seeking. Collaborative norms differ somewhat from the broader pro-sharing norms in that pro-sharing norms also include willingness to value and respond to diversity, openness to conflicting views, and tolerance of failure (Leonard-Barton 1995) in addition to the collaborative norms of teamwork (Starbuck 1992) and cooperation (Goodman and Darr 1998; Jarvenpaa and Staples 2000; Orlikowski 1993). Collaborative norms are likely to moderate the effects of individual costs and benefits on knowledge seeking behavior. The detailed hypotheses are as follows.

3.2 Costs and Benefits of Knowledge Seeking

Social exchange theory can be used to identify the costs (or negative outcomes) and benefits (or positive outcomes) perceived by individuals during knowledge seeking. This theory, similar to rational choice theories, posits that people behave in ways that maximize their benefits and minimize their costs (Thibaut and Kelley 1986). The same premise also holds for the costs and benefits of using knowledge management systems for seeking and contributing knowledge (Goodman and Darr 1998; Markus 2001; Wasko and Faraj 2000). During social exchange, costs can be incurred in the form of opportunity and obligation costs (Molm 1997).

3.2.1 Perceived Ease of Use

Opportunity costs are the rewards foregone from alternative behavior not chosen. From the perspective of knowledge seekers, opportunity costs are dependent on the effort and time (Goodman and Darr 1998; Markus 2001) needed to search for knowledge. This seeking effort corresponds to effort expectancy or the reverse of the perceived ease of use construct, which are important predictors of technology usage (Legris et al. 2003).

Perceived ease of use is defined as the degree to which a person believes that the act of using a technology would be free from effort (Davis 1989). In the context of our study, perceived ease of use refers to the belief that seeking knowledge from an EKR would be free of effort. All else being equal, an EKR that is perceived to be easy to use is more likely to be used by knowledge seekers.

While the above discussion suggests a positive relationship between perceived ease of use and EKR usage, this relationship is likely to be moderated by collaborative norms. From the perspective of knowledge seekers, a context of strong collaborative norms may lead them to believe that knowledge seeking is the expected behavior. This may cause them not to be deterred by the effort to seek knowledge from an EKR i.e., perceived ease of use may not matter. Conversely, in an environment of weak collaborative norms, employees may not consider cooperation and collaboration as accepted activities. This may, in turn, cause them to be sensitive to the effort required to seek knowledge, and consequently, to perceived ease of use of the EKR. Thus, we hypothesize:

H2: Perceived ease of use is positively related to EKR usage for knowledge seeking under conditions of weak collaborative norms.

3.2.2 Future Obligation

Recipients of knowledge may also experience obligation costs (Wasko and Faraj 2000). Blau (1964) noted that an individual who supplies rewarding services to another obligates him. To discharge this obligation, the recipient of rewarding services must furnish benefits to the supplier in the future. Till the obligation is discharged, obligation costs remain.

We define future obligation as the belief of being indebted to the knowledge contributor, for having sought his or her knowledge from the EKR. When knowledge seekers obtain knowledge from an EKR, they may feel the need to pay back in the future. Seeking knowledge incurs obligation for knowledge seekers that they may have to discharge in the future (Wasko and Faraj 2000). Such a pressure of future obligation may deter knowledge seekers from using EKRs.

The above argument suggests a negative relationship between future obligation and EKR usage for knowledge seeking, but this relationship is likely to be contingent on collaborative norms. In a context of strong collaborative norms, where most colleagues are seen to collaborate, knowledge seekers may not be sensitive to the cost of future obligation. However, when weak collaborative norms prevail and few colleagues are found to collaborate, knowledge seekers may feel burdened by the need to pay back knowledge to the community. This may cause them to be sensitive to the cost of future obligation when seeking knowledge from an EKR. Hence, we hypothesize:

H3: Future obligation is negatively related to EKR usage for knowledge seeking under conditions of weak collaborative norms.

In social exchanges, benefits can be extrinsic or intrinsic in nature (Vallerand 1997). Extrinsic benefits are sought as a means to an end. Extrinsic motivation comes from external sources, and the benefits (e.g., money) serve as a means to other ends (e.g., purchasing a desired product). An important extrinsic benefit for knowledge seekers may be the perceived usefulness of a knowledge management system (synonymous to the perceived usefulness construct of the technology acceptance model) (Goodman and Darr 1998; Wasko and Faraj 2000).

3.2.3 Perceived Usefulness

Perceived usefulness is defined as the degree to which a person believes that using a technology would enhance his or her job performance (Davis 1989). Perceived usefulness of EKRs can serve as a motivator for knowledge workers to seek knowledge from EKRs. If knowledge workers perceive that the results they obtain from a knowledge management system are useful for their work (i.e., the system can improve their job performance), they are likely to be motivated to use the system (Goodman and Darr 1998; Wasko and Faraj 2000).

While a positive relationship is expected between perceived usefulness and knowledge seeking through an EKR, collaborative norms are likely to moderate the relationship. In the presence of strong collaborative norms, the need for benefits such as perceived usefulness is not likely to be salient. The opposite is likely when collaborative norms are weak. Hence:

H4: Perceived usefulness is positively related to EKR usage for knowledge seeking under conditions of weak collaborative norms.

Intrinsic benefits are sought after as ends in themselves. Intrinsic motivation comes from within the individual, and is the pleasure or satisfaction derived from the behavior itself. A potential intrinsic benefit for knowledge seekers is growth in their knowledge as a result of using a knowledge management system (Wasko and Faraj 2000). Knowledge growth differs from perceived usefulness as it refers to the benefit of gaining expertise that may not be directly related to one's work whereas perceived usefulness refers to the job related usefulness of the knowledge obtained.

3.2.4 Seeker Knowledge Growth

Based on the premise that EKRs expand the pool of knowledge resources available to knowledge workers, knowledge seekers are likely to increase their expertise when they obtain knowledge from EKRs. This benefit of knowledge growth can serve as a motivator for knowledge seekers. Previous literature has suggested that knowledge seekers acquire knowledge so as to learn from the experience of others (Wasko and Faraj 2000). This logic also agrees with recent findings (Gray and Meister 2004) that learning orientation (belief that one's competence can be improved), which is related to motivation of knowledge growth, increases knowledge sourcing behavior.

While the above argument suggests a positive relationship between knowledge growth and EKR usage for knowledge seeking, the relationship is likely to be contingent on collaborative norms. When collaborative norms are strong, knowledge seekers may be convinced of the value created through knowledge sharing (Nahapiet and Ghoshal 1998). Hence, they may not require the benefits of knowledge growth when using EKRs. However, in the context of weak collaborative

norms, the opposite situation may exist and benefits of knowledge growth may be salient for them when they decide whether to seek knowledge from an EKR. Hence, we hypothesize:

H5: Seeker knowledge growth is positively related to EKR usage for knowledge seeking under conditions of weak collaborative norms.

Though cost and benefit factors are likely to impact EKR usage in conjunction with the moderating effect of norms, DTPB suggests that perceived behavioral controls also influence EKR usage.

3.3 Perceived Behavioral Controls

According to Ajzen (1991), perceived behavioral controls reflect the beliefs regarding access to the resources and opportunities needed to perform a behavior, or alternatively, to the internal and external factors that may impede performance of the behavior. Internal facilitating factors include a feeling of self-efficacy while external factors consist of resource facilitating conditions.

3.3.1 Self-efficacy

Self-efficacy is the belief in one's capabilities to organize and execute the courses of action required to produce given goals (Bandura 1997). It is a form of self-evaluation that influences decisions about what behaviors to undertake, the amount of effort and persistence put forth when faced with obstacles, and finally, the mastery of the behavior (Bandura 1982; 1997). The relationship between self-efficacy and technology use is perhaps intuitively obvious. Self-efficacy is essential in overcoming the fear many novice users experience. The relationship between computer self-efficacy and computer use has been empirically verified in a number of studies (Compeau and Higgins 1995).

In the context of our study, self-efficacy refers to individuals' belief in their own ability to seek knowledge from EKRs. It refers to the confidence in one's ability rather than one's actual skills. The role of self-efficacy in information systems (IS) usage behavior has been validated in earlier studies (Taylor and Todd 1995). Extending the notion to EKRs, we may expect self-efficacy to enhance usage of EKRs for knowledge seeking. However, the impact of such perceived behavioral controls is not likely to be contingent on collaborative norms. We thus hypothesize:

H6: Self-efficacy is positively related to EKR usage for knowledge seeking.

3.3.2 Resource Facilitating Conditions

Resource facilitating conditions reflect the availability of resources needed to engage in a behavior (Taylor and Todd 1995). Required resources that are likely to facilitate technology usage include time, availability of technology, training, and management support.

In our context, resource facilitating conditions are defined as resource related objective factors in the environment that can aid EKR usage for knowledge seeking. Resource facilitating conditions have been found to promote technology usage in various contexts (Legris et al. 2003). In the context of our study, resources such as training, management support, and time and system availability can act to facilitate EKR usage. The impact of these conditions is not likely to be contingent on collaborative norms. Thus, we hypothesize:

H7: Resource facilitating conditions are positively related to EKR usage for knowledge seeking.

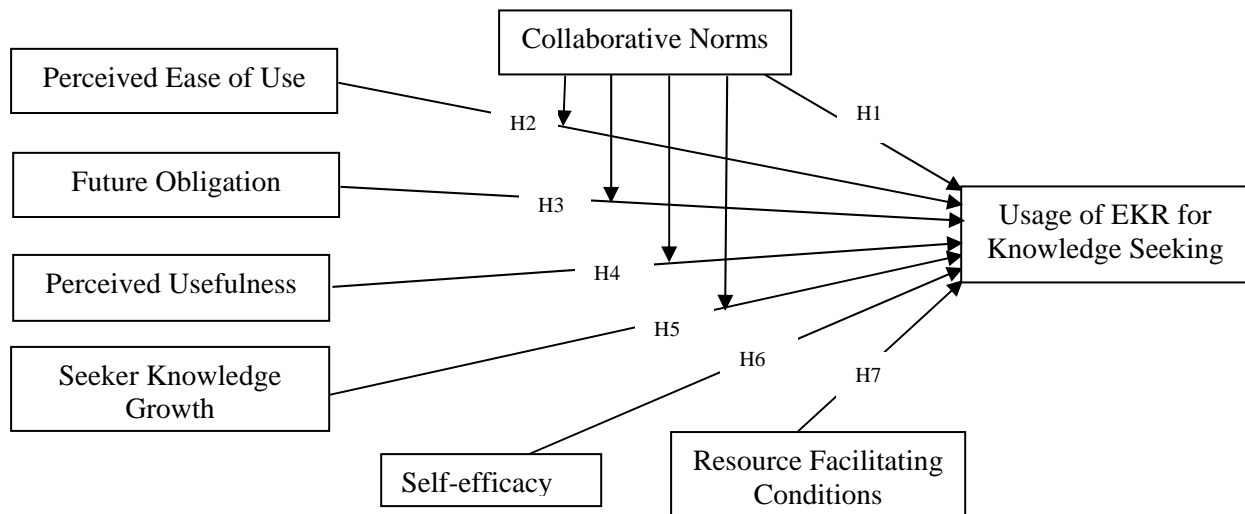


Figure 1. Proposed Model

Synthesizing the above hypotheses, we propose a model for explaining the influence of norms on knowledge seeking behavior via EKRs (see Figure 1). Cost (reverse of perceived ease of use and future obligation) and benefit (perceived usefulness and seeker knowledge growth) factors are hypothesized to influence knowledge seeking through EKRs. Collaborative norms are expected

to influence knowledge seeking behavior both directly as well as through their moderating effects in conjunction with cost and benefit factors.

Table 1. Operationalization of Constructs

Construct	Questions	Sources
Perceived ease of use (EAS)	<ul style="list-style-type: none"> • Takes too much time to find knowledge • Requires lot of effort to locate knowledge • Laborious to find knowledge • Think hard to formulate queries • Think hard to narrow search results • Think hard to analyze search results 	<ul style="list-style-type: none"> • Kankanhalli et al. (2005b) • Self-developed
Future obligation (FOB)	<ul style="list-style-type: none"> • Feel obliged to contribute in the future • Strong sense of duty to pay back for seeking • Pressure to pay back for seeking 	<ul style="list-style-type: none"> • Kankanhalli et al. (2005b) • Dorsch and Kelley (1994)
Perceived usefulness (PUF)	<ul style="list-style-type: none"> • EKR use increases performance • EKR use enables quicker task accomplishment • EKR use enhances effectiveness 	<ul style="list-style-type: none"> • Malhotra and Galletta (1999)
Seeker knowledge growth (SKG)	<ul style="list-style-type: none"> • EKR use enhances my knowledge • Use EKR to learn new things • Use EKR to master new skills • Use EKR to feel personally challenged 	<ul style="list-style-type: none"> • Kankanhalli et al. (2005b)
Self-efficacy (SEF)	<ul style="list-style-type: none"> • Comfortable using EKR on my own • Easily use EKR on my own • Use EKR even with no one to help me 	<ul style="list-style-type: none"> • Taylor and Todd (1995)
Resource facilitating conditions (RFC)	<ul style="list-style-type: none"> • Limited time to use EKR • Little spare time to learn about EKR • Find time between work to use EKR • Overextend to get work done on time • In a hurry when using EKR • Pressed for time when using EKR • Use of EKR encouraged by management • Management values learning of EKR • Management values learning of EKR as investment • Training to use EKR is provided • Training resources are useful • Training materials are available 	<ul style="list-style-type: none"> • Taylor and Todd (1995) • Kankanhalli et al. (2005a) • Putrevu and Ratchford (1997) • Sinkula et al. (1997) • Futrell et al. (1984)
Collaborative norms (CBN)	<ul style="list-style-type: none"> • Norm of cooperation • Norm of collaboration • Knowledge sharing is important • Knowledge sharing is strongly encouraged 	<ul style="list-style-type: none"> • Kankanhalli et al. (2005b) • Fisher et al. (1997)
Usage of EKR (USE)	<ul style="list-style-type: none"> • Usage of EKR for specific task • Usage of EKR in general 	<ul style="list-style-type: none"> • Self-developed

4. RESEARCH METHODOLOGY

We adopted the survey methodology to test our model as this approach aims for better generalizability of results (Dooley 2001). Questionnaires represent an exploratory survey approach that is structured and allows quantitative analysis for hypothesis testing.

4.1 Operationalization

Where available, tested questions from prior studies were used to measure constructs in this study, with the aim of enhancing validity of the constructs. Where tested questions were not available, new questions were developed based on a review of the knowledge management and IS literature. Table 1 summarizes the questions measuring each construct in this study. All items were measured on a five-point Likert scale. Prior to actual data collection, pre-testing of the instrument was done with a sample of 44 working professionals through an electronic questionnaire distributed by email. The pre-test indicated that the items were unambiguous for the professionals.

4.2 Survey Administration

The survey was administered to 134 working professionals who were pursuing a part-time graduate degree at a large university. A cover letter that explained the significance of the study and assured the confidentiality of responses accompanied the survey instrument. The respondents were chosen because they were employed in knowledge-intensive industries, were familiar with knowledge management technologies, and had at least one year of work experience. All the respondents were volunteers. Nevertheless, they were given a token payment for their participation. About 69% of the respondents were males and 31% were females. Their average work experience was about 4.8 years. In the sample, 48.1% were graduates and 51.9% had post-graduate qualifications.

5. DATA ANALYSIS AND RESULTS

Partial least squares (PLS), a structural equation modeling technique, was used for data analysis. PLS assesses the measurement model within the context of the structural model (Fornell 1982). This technique does not require multivariate normal distribution or a large sample size for its data (Fornell and Bookstein 1982). Also, it is primarily intended for causal-predictive analysis in

situations of low theoretical information and is appropriate for early stages of theory development (Howell and Higgins 1990). Given that this study is an early attempt to develop a theoretical model that predicts influence of norms on usage of EKR by knowledge seekers and that the sample size available is small, PLS is appropriate for this study.

5.1 PLS Measurement Model

The PLS measurement model links each construct in the structural model to questions that measure the construct. The strength of the measurement model could be established through convergent validity and discriminant validity (Hair et al. 1998).

We applied three tests to assess convergent validity: Cronbach alpha, composite reliability of constructs, and average variance extracted by constructs (Fornell and Larcker 1981). Nunnally (1978) proposed 0.7 as an indication of adequate Cronbach alpha. When computing composite reliability of constructs, the PLS approach takes into account relationships among constructs. Hair et al. (1998) recommended 0.8 as an indication of adequate composite reliability. PLS computes variance extracted by constructs based on the extent to which all questions measuring a construct actually tap into the same underlying construct. Fornell and Larcker (1981) suggested 0.5 as an indication of adequate variance extracted. As Table 2 shows, all constructs in this study showed adequate convergent validity.

Construct	Cronbach Alpha	Composite Reliability	Average Variance Extracted
Perceived ease of use (EAS)	0.85	0.92	0.66
Future obligation (FOB)	0.86	0.88	0.71
Perceived usefulness (PUF)	0.85	0.81	0.51
Seeker knowledge growth (SKG)	0.83	0.84	0.50
Self-efficacy (SEF)	0.83	0.83	0.62
Resource facilitating conditions (RFC)	0.72	0.94	0.57
Collaborative norms (CBN)	0.70	0.88	0.70
Usage of EKR (USE)	0.89	0.80	0.67

Table 2. Results of Convergent Validity Tests

We applied two tests to assess discriminant validity. First, all questions were subjected to factor analysis to ensure that questions measuring each construct loaded more highly on their intended

construct than other constructs (Thompson et al. 1991). Second, each question should correlate more highly with other questions measuring the same construct than with questions measuring other constructs. This was determined by checking whether the variance extracted by each construct exceeded the shared variance between that construct and other constructs (Igbaria et al. 1994). As a result of factor analysis, eight components were extracted corresponding to each of the model construct. Table 3 shows the shared variance among the model constructs. The results of the two tests show all of the constructs in this study had discriminant validity.

	USE	PUF	EAS	SKG	FOB	SEF	RFC	CBN
USE	0.67							
PUF	0.12	0.51						
EAS	0.01	0.01	0.66					
SKG	0.14	0.30	0.01	0.50				
FOB	0.01	0.07	0.01	0.11	0.71			
SEF	0.15	0.10	0.02	0.04	0.02	0.62		
RFC	0.04	0.01	0.02	0.15	0.02	0.01	0.57	
CBN	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.70

Table 3. Shared Variance (Variance Extracted) Among Constructs

5.2 PLS Structural Model

Given an adequate measurement model, the hypotheses could be tested with the examination of the structural model. The explanatory power of the structural model was assessed based on the amount of variance in the endogenous construct (usage of EKR) for which the model could account. Our structural model could explain 42% of the variance for usage of EKR. This greatly exceeded 10%, which was suggested by Falk and Miller (1992) as an indication of substantive explanatory power.

After parameter estimates for all paths in the structural model are computed, a jack-knife resampling technique (Hair et al. 1998) was used for computing T-values for all paths (see Table 4). Given that each hypothesis corresponded to a path in the structural model, support for each hypothesis could be determined based on the sign (positive or negative) and statistical significance for its corresponding path. Figure 2 shows a graphical display of the results of hypothesis testing.

Our findings indicate that collaborative norms, self-efficacy, and resource facilitating conditions were positively related to EKR use i.e., H1, H6, and H7 were supported. Future obligation was negatively related to EKR use only under conditions of weak collaborative norms (H3 was supported). Perceived usefulness was positively related to EKR use when collaborative norms were weak (H4 was supported). However, perceived ease of use was not related to EKR use even when collaborative norms were weak (H2 was not supported). Also, seeker knowledge growth was positively related to EKR use irrespective of collaborative norms (H5 was not supported).

Hypothesis	Coefficient	T-value	P-value	Outcome
H1: CBN to USE	0.19	2.02	0.025	Supported
H2: EAS to USE	0.05	0.40	n.s.	Not supported
EAS*CBN to USE	0.11	0.60		
H3: FOB to USE	-0.04	-0.70		
FOB*CBN to USE	0.19	2.63	0.005	Supported
H4: PUF to USE	0.10	1.10		
PUF*CBN to USE	-0.17	-2.46	0.01	Supported
H5: SKG to USE	0.17	2.30	0.01	
SKG*CBN to USE	0.01	0.49	n.s.	Not supported
H6: SEF to USE	0.19	3.21	0.001	Supported
H7: RFC to USE	0.15	2.13	0.025	Supported

Table 4. Results of Hypotheses Tests n.s. = not significant

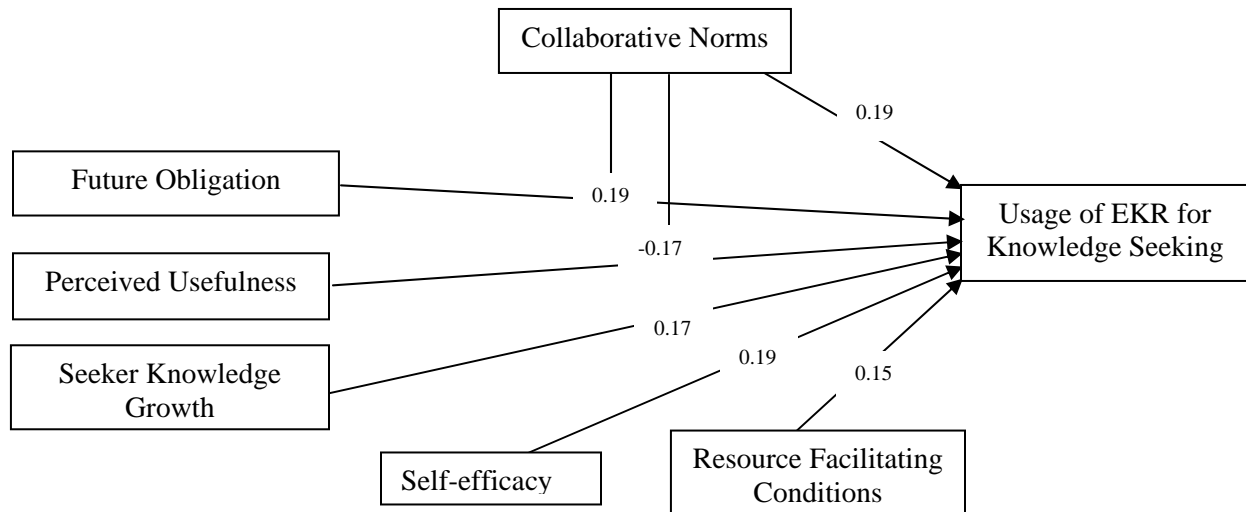


Figure 2. Graphical Display of Results

6. DISCUSSION

We have sought to examine the role of collaborative norms in overcoming barriers to knowledge seeking and promoting seeking. Our findings indicate that collaborative norms can indeed reduce

the influence of barriers such as future obligation, but they can also reduce the impacts of motivators such as perceived usefulness.

6.1 Implications

As can be seen from our findings, collaborative norms do play an important role in encouraging knowledge seeking. Not only do norms of cooperation and collaboration directly influence knowledge seeking from an EKR, they also moderate the relationship between certain costs (future obligation) or benefits (perceived usefulness) and EKR use. As expected, collaborative norms do not moderate the influence of perceived behavioral controls (self-efficacy and resource facilitating conditions) on knowledge seeking from an EKR. Our research contributes to knowledge in this regard by explicating the role of collaborative norms in influencing knowledge seeking, particularly, with reference to the motivators and demotivators of knowledge seeking.

As expected, future obligation acts as a cost or inhibitor of knowledge seeking from EKR under conditions of weak collaborative norms. This finding extends previous literature (Wasko and Faraj 2000) suggesting that future obligation can act as a demotivator for knowledge seeking, by indicating the organizational conditions (weak collaborative norms) under which this cost is salient. Under weak collaborative norms, seekers can feel greater obligation once they reuse knowledge from an EKR. When knowledge seeking via an EKR involves explicitly acknowledging the inputs or assistance received, the situation could be worse. This situation points to the necessity to promote collaborative norms by encouraging and rewarding cooperation and collaboration to overcome resistance towards EKR usage due to future obligation cost.

As hypothesized, there is a significant positive relationship between perceived usefulness and EKR usage by knowledge seekers when collaborative norms are weak. This result extends previous literature (Goodman and Darr 1998; Kankanhalli et al. 2005a; Wasko and Faraj 2000) by indicating the conditions under which perceived usefulness motivates knowledge seeking from an EKR. Knowledge seekers may not be motivated to use knowledge from an EKR until the usefulness of knowledge exceeds the inertia, for example, the not-invented-here (NIH) syndrome (Menon and Pfeffer 2003). NIH can serve as an ethical dilemma for knowledge

seekers just as loss of power due to contribution can serve as an ethical problem for knowledge contributors. NIH poses the question of whether seekers should reuse existing knowledge for organizational productivity benefits or devise their own solutions for possible credit to themselves. Further, credit given for knowledge contribution can have the effect of enhancing NIH and inhibiting knowledge reuse. Thus, the usefulness of knowledge from an EKR needs to be improved to encourage knowledge seeking and reuse when collaborative norms are weak and cannot be enhanced easily in the organization. Alternatively, to encourage collaborative norms, redeployment of prior knowledge stock rather than a fresh effort to develop novel knowledge is advisable (Sambamurthy and Subramani 2005).

There is a significant positive relationship between knowledge growth and EKR usage by knowledge seekers. However, the relationship is not moderated by collaborative norms. This finding indicates that the intrinsic benefit of knowledge growth is a motivator for knowledge seeking irrespective of the collaborative norms prevalent in the organization. Although knowledge seekers may not be inclined to apply preexisting knowledge to their task, this finding proves that they do realize the benefits to be derived from an EKR. Therefore, managers can highlight the learning benefit of EKR use in order to promote knowledge seeking from EKRs.

The other hypothesis that is not supported by our findings concerns perceived ease of EKR usage. The ease of use construct might not have been influential for our sample, which consisted mainly of respondents who were considerably familiar with IT. For them, ease of use might not be as important an issue as compared to the less computer literate users surveyed in previous studies (Taylor and Todd 1995).

6.2 Limitations and Future Research

Results of this study must be interpreted in the context of its limitations. First, the use of cross-sectional data does not allow for bi-directional (feedback) effects to be explored. Hence, the effects of EKR usage on subsequent perceptions of cost and benefit factors are recognized in this study, but could not be examined. Future studies could collect longitudinal data on EKR usage over time to assess feedback effects. Second, we have used a sample of 134 respondents. A larger sample would allow more sophisticated statistical tests to be carried out. For example, cost

and benefit can be modeled as second-order formative or reflective constructs. Such a model would allow a more rigorous test of the constructs from social exchange theory although testing of individual moderating effects would become more complex. Third, the external validity of our results in other settings remains to be assessed. To meet that need, future research can replicate this study in other contexts.

7. CONCLUSION

With regard to investigating knowledge seeking behavior, this research offers some valuable contributions. First and foremost, this is a pioneering attempt to model and validate the influence of collaborative norms on knowledge seeking behavior through EKR. Our model provides an understanding of the latent psychological processes that induce knowledge seeking from EKR. Second, our research has identified how norms operate in conjunction with other antecedents and the implications with respect to the dilemmas involved in knowledge seeking through EKR. Third, our model has been largely validated by empirical results as being consistent with established behavioral theories in social psychology, such as the decomposed theory of planned behavior, technology acceptance model, social exchange theory, and social capital theory. The integration of multiple theoretical perspectives allows for greater explanatory power of the model. Additionally, we have developed instruments for a number of constructs and provided a basis for further research on knowledge seeking. Last, we have provided practical suggestions on enhancing knowledge seeking in organizations. Studies of this nature should assist organizations towards realizing the benefits of knowledge management.

REFERENCES

- Ajzen I (1991) The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes* 50, 179-211.
- Bandura A (1982) Self-Efficacy Mechanism in Human Agency. *American Psychologist* 37, 122–147.
- Bandura A (1997) *Self-Efficacy: The Exercise of Control*. W.H. Freeman, New York.
- Blau PM (1964) *Exchange and Power in Social Life*. John Wiley, New York.
- Bock GW, Zmud RW, Kim YG and Lee JN (2005) Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces, and

- Organizational Climate. *MIS Quarterly* 29(1), 87-112.
- Borgatti SP and Cross R (2003) A Relational View of Information Seeking and Learning in Social Networks. *Management Science* 49(4), 432-445.
- Coleman J (1990) *Foundations of Social Theory*. Harvard University Press, Cambridge, MA.
- Compeau D and Higgins C (1991) The Development of a Measure of Computer Self-Efficacy. In *Proceedings of the ASAC 1991 Conference*, Niagara Falls, NY, 34-38.
- Constant D, Kiesler S and Sproull L (1994) What's Mine is ours, or is it? A Study of Attitudes about Information Sharing. *Information Systems Research* 5, 400-421.
- Cross R, Rice R, and Parker A (2001) Information Seeking in Social Context: Structural Influences and Receipt of Informational Benefits. *IEEE Transactions on Systems, Man, and Cybernetics* 31(4), 438-448.
- Davenport TH and Prusak L (1998) *Working Knowledge: How Organizations Manage What They Know*. Harvard Business School Press, Boston.
- Davis FD (1989) User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science* 35, 982-1003.
- Dooley D (2001) *Social Research Methods*. Prentice Hall, Upper Saddle River, NJ.
- Dorsch MJ and Kelley SW (1994) An Investigation into the Intentions of Purchasing Executives to Reciprocate Vendor Gifts. *Journal of the Academy of Marketing Science* 22, 315-327.
- Falk RF and Miller NB (1992) *A Primer for Soft Modeling*. University of Akron Press, Akron, Ohio.
- Feldman DC (1984) The Development and Enforcement of Group Norms. *Academy of Management Review* 9, 47-53.
- Fisher RJ, Maltz E and Jaworski BJ (1997) Enhancing Communication between Marketing and Engineering: The Moderating Role of Relative Functional Identification. *Journal of Marketing* 61(3), 54-70.
- Fornell C (1982) *A Second Generation of Multivariate Analysis Methods*. Praeger, New York.
- Fornell C and Bookstein FL (1982) Two Structural Equation Models: LISREL and PLS Applied to Consumer Exit-Voice Theory. *Journal of Marketing Research* 19(11), 440-452.
- Fornell C and Larcker DF (1981) Structural Equation Models with Unobservable Variables and Measurement Errors. *Journal of Marketing Research* 18(2), 39-50.

- Fulk J, Heino R, Flanagan A, Monge P and Bar F (2004) A Test of the Individual Action Model for Organizational Information Commons. *Organization Science*, 15(5), 569-586.
- Futrell CM, Berry LL and Bowers MR (1984) An Evaluation of Sales Training in the US Banking Industry. *Journal of Personal Selling and Sales Management*, 4(2), 40-47.
- Goodhue DL and Thompson RL (1995) Task-Technology Fit and Individual Performance. *MIS Quarterly*, 19(2), 213-236.
- Goodman PS and Darr ED (1998) Computer-Aided Systems and Communities: Mechanisms for Organizational Learning in Distributed Environments. *MIS Quarterly* 22, 417-440.
- Gray PH and Meister D (2004) Knowledge Sourcing Effectiveness. *Management Science* 50(6), 821-834.
- Hair JF, Andersen RE, Tatham RL and Black WC (1998) *Multivariate Data Analysis*. Prentice Hall, Upper Saddle River, NJ.
- Howell JM and Higgins CA (1990) Champions of Technological Innovation. *Administrative Science Quarterly* 35(2), 317-341.
- Igbaria M, Parasuraman S and Badawy MK (1994) Work Experiences, Job Involvement, and Quality of Work Life among Information Systems Personnel. *MIS Quarterly* 18(2), 175-201.
- Jarvenpaa SL and Staples DS (2000) The Use of Collaborative Electronic Media for Information Sharing: An Exploratory Study of Determinants. *Journal of Strategic Information Systems* 9(2-3), 129-154.
- Kankanhalli A, Tan BCY and Wei KK (2005a) Understanding Seeking from Electronic Knowledge Repositories: An Empirical Study. *Journal of the American Society for Information Science and Technology* 56(11), 1156-1166.
- Kankanhalli A, Tan BCY and Wei KK (2005b) Contributing Knowledge to Electronic Knowledge Repositories: An Empirical Investigation. *MIS Quarterly* 29(1), 113-143.
- Legris P, Ingham J and Collerette P (2003) Why do People Use Information Technology? A Critical Review of the Technology Acceptance Model. *Information and Management* 40(3), 191-204.
- Liebowitz J and Beckman T (1998) *Knowledge Organizations: What Every Manager Should Know*. CRC Press, Boca Raton.
- Leonard-Barton D (1995) *Wellsprings of Knowledge: Building and Sustaining the Source of Innovation*. Harvard Business School Press, Boston, MA.

- Malhotra Y and Galletta DF (1999) Extending the Technology Acceptance Model to Account for Social Influence: Theoretical Bases and Empirical Validation. In the *Proceedings of the 32nd Hawaii International Conference on Systems Sciences*, p. 6-14, Maui, Hawaii.
- Markus ML (2001) Towards a Theory of Knowledge Reuse: Types of Knowledge Reuse Situations and Factors in Reuse Success. *Journal of Management Information Systems* 18(1), 57-94.
- Menon T and Pfeffer J (2003) Valuing Internal vs. External Knowledge: Explaining the Preference for Outsiders. *Management Science*, 49(4), 497-513.
- Molm LD (1997) *Coercive Power in Social Exchange*. Cambridge University Press, New York.
- Nahapiet J and Ghoshal S (1998) Social Capital, Intellectual Capital and Organizational Advantage. *Academy of Management Review* 23(2), 242-266.
- Nebus J (2004) Learning by Networking: Knowledge Search and Sharing in Multinational Organizations. In the Proceedings of the 46th *Academy of International Business Annual Meeting*, Stockholm, Sweden.
- Nevis EC (1995) Understanding Organizations as Learning Systems. *Sloan Management Review* 36, 73-85.
- Nunnally JC (1978) *Psychometric Theory*. McGraw-Hill, New York.
- O'Dell C and Grayson CJ (1998) If Only We Knew What We Know: Identification and Transfer of Internal Best Practices. *California Management Review* 40, 154-174.
- Orlikowski WJ (1993) Learning from Notes: Organizational Issues in Groupware Implementation. *Information Society* 11, 237-251.
- Putrevu S and Ratchford BT (1997) A Model of Search Behavior with an Application to Grocery Shopping. *Journal of Retailing* 73, 463-496.
- Sambamurthy V and Subramani M (2005) Special Issue on Information Technologies and Knowledge Management. *MIS Quarterly* 29(1 & 2), 1-7 & 193-195.
- Sinkula JM, Baker WE and Noordeweir D (1997) A Framework for Market Based Organizational Learning: Linking Values, knowledge and Behavior. *Journal of the Academy of Marketing Science* 25, 305-318.
- Starbuck WH. (1992) Learning by Knowledge-Intensive Firms. *Journal of Management Studies* 29(6), 713-740.
- Taylor S and Todd PA (1995) Understanding Information Technology Usage: A Test of

Competing Models. *Information Systems Research* 6, 144-176.

Thibaut JW and Kelley HH (1986) *The Social Psychology of Groups*. Transaction Books, New Brunswick, New Jersey.

Thompson RL, Higgins CA and Howell JM (1991) Personal Computing: Toward a Conceptual Model of Utilization. *MIS Quarterly* 1, 125-143.

Vallerand RJ (1997) Toward a Hierarchical Model of Intrinsic and Extrinsic Motivation. *Advances in Experimental Social Psychology* 29, 271-360.

Vroom VH (1964) *Work and Motivation*. Wiley, New York.

Wasko MM and Faraj S (2000) "It is What One Does": Why People Participate and Help Others in Electronic Communities of Practice. *Journal of Strategic Information Systems* 9, 155-173.