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An Investigation into the Impact of Social Networking on Knowledge Sharing

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by

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We hereby certify that this dissertation, submitted by James Gorham, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the dissertation requirements for the degree of Doctor of Philosophy

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Today we are experiencing a rapidly increasing trend to use social networking in ways that dramatically affect both our personal and our public lives. This is a global phenomenon being experienced around the world. Exactly how this technology is being used and by whom is of great interest. The problem is that not a lot of research has been conducted to investigate the role social networking sites play to influence a person's attitude toward sharing knowledge at work. In light of the marked increase in the use of social networking sites and how it is changing the way we live, both at work and during leisure activities, this research examines the factors that influence our attitudes towards knowledge sharing. This study presents the results of a quantitative research to understand the nature and impact of these motivating factors and analyzes how they influence our attitudes regarding the use of social networking sites as a venue in which to share knowledge.

This study was conducted by means of an Internet survey. A self-administered questionnaire provided data and assisted in determining the degree to which the use of social networking sites is being used to share knowledge in the workplace. This non-experimental, cross-sectional, correlational study was conducted by means of quantitative research procedures to investigate the impact and influence social networking has on the knowledge transfer process. This research showed how social networking has redefined the collaborative environment that encourages knowledge holders to share their valuable knowledge. The results show that some factors, such as organizational climate, the subjective norm, and knowledge sharing attitudes, have a dominant impact on our behavior regarding the use of social networking sites and our intention to share knowledge with others. Another set of factors influenced our behavior and attitudes, but to a lesser degree, while one factor, anticipation of extrinsic rewards, actually exerted a negative influence on an individual's knowledge sharing attitudes. The results of this dissertation increased and contributed to our understanding of the relationship between social networking sites and intention to share knowledge and set the stage for follow-on research.

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Chapter 1

Introduction

Background

Knowledge is widely accepted as the foundation of a firm's competitive advantage (Murmann, 2003) and the driving force of a firm's value (Spender, 1996). Knowledge management cuts across all aspects of our culture (Yang & Farn, 2008), and is considered critical to the long-term sustainability and success of an organization (Nonanka &Takeuchi, 1995). Research and development, technology, medicine, the military/industrial complex, business and finance, and academia are just a few of the areas where knowledge management and knowledge sharing play important roles in our modern society. Strategic management of knowledge resources is one of the key factors for sustaining a firm's competitive advantage, and knowledge sharing is perceived to be the most essential process for any knowledge management system (He & Wei, 2009). A fundamental tenet of knowledge management is having a repository of the right information readily available when needed. According to Rhode and Sundaran (2010), one of the best methods of ensuring the knowledge database is kept current is through an effective knowledge sharing strategy involving subject matter experts actively pursuing the discovery and analysis of critical information. Knowledge sharing concerns the willingness of individuals in an organization to share with others the knowledge they have acquired or created (Gibbert & Krause, 2002).

Employee engagement is recognized as a key contributing factor to organizational success. Employee engagement is demonstrated by one's appraisal of situations and events that occur in the work context and the coping strategies one uses to deal with these situations and events.

Engagement is proactive behavior on the part of the employee, and has been found to be a good predictor of workplace optimism (Medlin & Green, 2008). The benefits of highly engaged employees include increased productivity and profitability. On the other hand, unengaged or actively disengaged employees can result in low productivity, high turnover, absenteeism, and counterproductive work behaviors directed at sabotaging organizational goals (Gallup, 2010; Harter, Schmidt, & Hayes, 2002; Luthans & Peterson, 2002; Medlin & Green, 2008; Rich, Lepine, & Crawford, 2010; Saks, 2006; Salanova, Agut, & Peiro, 2005). As a consequence, researchers have expended significant effort to understand why employees respond to work conditions with varying degrees of engagement. Employee engagement has been studied using four primary theoretical conceptualizations of engagement (Kahn, 1990; Maslach, Schaufeli, & Leiter, 2001; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002; Harter, Schmidt, & Hayes, 2002) across a wide variety of industries, occupations, countries, and organizational levels. Within this body of research, the primary focus has been on understanding the organizational conditions that drive employee engagement. For example, it is well-known that work characteristics such as challenging work, person-job fit, opportunities for growth and development, and supportive supervisor and coworker relationships are important antecedents of employee engagement (Kahn, 1990; Maslach, Schaufeli, & Leiter, 2001; May, Gilson, & Harter, 2002; Harter, Schmidt, & Hayes, 2002; Schaufeli, & Bakker, 2004). However, the role of individual differences in accounting for variations in employee involvement has been fragmented across several variables.

Knowledge transfer is critical to successful implementation of knowledge management (Ipe, 2003), and to maintaining a competitive advantage for any organization. McElroy (2003) described knowledge sharing as the process by which knowledge held by an individual is

integrated into the operations of a wider population of people. A challenge to any successful knowledge sharing endeavor is how to encourage knowledge stakeholders to share their knowledge with others. Numerous methods avail themselves to this problem, such as central warehousing of information, and peer-to-peer sharing among users (Alavi & Leidner, 2001). The knowledge transfer process can be applied equally to both tacit knowledge as well as explicit knowledge. It is the conscious and voluntary process of sharing tacit knowledge or facilitating the learning of explicit knowledge between a person possessing knowledge and those who would like it. Ipe noted in 2003 that, although much had been written about why managing knowledge is important to organizations, there was considerably less research and documented data on how social networking influences the knowledge transfer process. More recently, notable progress has been made both in knowledge management and especially in social networking during the past ten years. This research investigated the relationship between the use of social networking sites and its impact on attitude towards using social networking to share knowledge in the workplace. Many people use social networking sites as a venue to exchange information in a social, non-work environment. The use of social networks has drastically increased over the past few years. As a consequence, researchers have expended significant effort to study issues related to the use of social networking sites, especially with respect to security and personal identity theft. While this is a generally accepted phenomenon, no recent research has investigated the impact of visiting social networking sites on a social basis and how this usage may affect one's knowledge sharing behavior at work. A key benefit of this study was to fill a gap in our understanding of knowledge sharing by providing an increased understanding of what motivates employees to share their knowledge, and the mechanisms that facilitate

sharing, especially when this sharing supports the organizational goal of better knowledge management.

The relationship between proactive behavior, optimism, self-esteem, personality traits, and job involvement has been explored from several perspectives. Christian, Garza, and Slaughter (2011) found a positive relationship between involvement and proactive behavior. Both Sonnentag (2003) and Salanova and Schaufeli (2008) found that job involvement mediated the relationship between work characteristics and proactive behavior. Research on the relationship between optimism and job involvement has received mixed results. Xanthopoulou, Bakker, Demeroutie, and Schaufeli (2009) found support for optimism as a partial mediator between job resources and involvement, yet Medlin and Green (2008) found work involvement was a significant predictor of workplace optimism. With respect to self-esteem, personality traits, and core self-evaluations, Mauno, Kinnunen, and Ruokolainen (2007) found that self-esteem predicted employee involvement. Rich, LePine, and Crawford (2010) found that job involvement mediated the relationship between core self-evaluations and task performance. Appraisal and coping strategies have received limited attention within the job involvement literature. In their meta-analytic review, Crawford, LePine, and Rich (2010) found that appraisal of work demands influenced employee work involvement: work demands appraised as threatening had a negative influence on involvement whereas work demands appraised as challenging had a positive influence on work involvement. Finally, only three studies have directly measured motivation as a variable that influences employee involvement. These studies used Ryan and Deci's (2000) self-determination theory of motivation and yielded mixed results. Van Beek, Taris, and Schaufeli (2011) found a positive relationship between the identified and intrinsic forms of motivation and employee involvement, and Van Beek, Hu, Schaufeli, Taris,

and Schreurs (2012) found similar results while controlling for work characteristics (job control and social support from colleagues and supervisors). Rich, LePine, and Crawford (2010) explored motivation as a mediator above and beyond job involvement in the relationship between core self-evaluations as an independent variable and task performance and organizational citizenship as dependent variables as opposed to considering motivation as a process that undergirds involvement as an outcome. The results yielded that motivation was not a mediator above and beyond involvement in the relationship between the independent and dependent variables.

Analysis of the research identifies several observations. First, the relationship between individual differences and involvement has only been explored as an outcome or mediator of involvement. Second, research has not explored the linkage between appraisal, coping strategies, individual differences, and involvement. Third, the relationship between motivation, involvement, and work characteristics has only been explored as a mediator with no linkage to appraisal or coping strategies. In conclusion, the relationship between individual differences, appraisal, coping strategies, motivation, and involvement has received fragmented attention. However, the reality is that these variables are potentially all part of a unified process related to an individual's response to his or her work environment. Additionally, individual differences have only been explored as a mediator in the relationship between other variables. According to Baron and Kenny (1986), moderator variables can help explain an inconsistent or weak relationship between predictor and outcome variables. As cited by Shadish, Cook, and Campbell (2002), the ability to identify moderator variables adds to the body of evidence to establish causal inference by predicting an interaction between the moderator and the variables that produce an observed effect. Therefore, individual differences should also be explored to

determine whether they function as a moderator of the variables that influence employee involvement (Warner, 2008; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Synthesis of the research suggests an integrated model that examines employee involvement from the perspective of the individual characteristics employees bring with them to the workplace and takes into consideration the relationship of those characteristics from the perspective of an employee's interaction with the environment within a framework that directly measures the appraisal, coping, and motivational processes. This study addressed the topic of employee attitude in a manner that has not been studied before, is new and different from other studies, extended prior research, and filled a gap in the existing literature on employee involvement.

The wide-spread use of social networking technology in knowledge sharing gives cause to reexamine the findings of earlier studies. A study conducted by Bock and Kim (2002) determined that an individual's level of Information Technology (IT) usage did not show a significant moderating effect on the individual's knowledge sharing behavior. Another study (Hendricks, 1999) found that IT alone did not affect knowledge sharing unless there also was a behavioral motivation present. Both of these studies were conducted more than 10 years ago, before social networking was as widely used as today. A third study (Bock, Zmud, Kim, & Lee, 2005) focused on factors supporting or inhibiting knowledge sharing, but limited itself to employee knowledge sharing behavior and did not include any IT influence.

This paper is organized as follows. The introductory section provides a brief background of the problem identified for this research. The author then provides the problem statement where the issue investigated in this study is identified. The following section states the dissertation goal where the purpose for undertaking this research effort is described. Next, the author presents the conceptual model on which the research was based. Also included are the hypotheses developed

to guide the researcher through this study. The author then discusses the relevance and significance of the study, justifying why the research effort was undertaken. Finally, any known or anticipated barriers to this study are identified. This chapter also includes a definition of terms, and concludes with a summary of the project. Chapter 2 presents a review of the scholarly literature relevant to this research effort. Major topics include the role of theory in research, an introduction to the theory of reasoned action, and more detailed discussions on knowledge management, knowledge sharing, social networks, and employee engagement. In Chapter 3 the author describes the research approach and identifies the resources required during the course of the study. Chapter 4 presents the results of this study, describing the demographics of the survey population and the quantitative analysis that was conducted or the information provided by the 513 participants who responded to the survey questionnaire. Chapter 5 concludes this author's dissertation report by presenting a brief summary of the overall research effort, including motivational factors, goals and objectives, research hypotheses, and a summary of the research results. It then discusses the limitations and provides recommendations for follow-on studies. The final section is a list of appendices and references relevant to this research.

Problem Statement

A study by Kalling and Styhre (2003) identified the relative lack of attention addressing the role of motivational factors that influence knowledge sharing behaviors. More recent studies have investigated different factors including both social influences as well as organizational influences that potentially influence one's desire to share knowledge, such as extrinsic rewards, reciprocal relationships, sense of self-worth, level of information and communications technology (ICT) usage, and attitude towards the subjective norm (Bock & Kim, 2002; Bock et

al., 2005). Although a number of studies have looked at knowledge sharing, they have not addressed the impact that social networking has brought to the knowledge transfer process. Earlier studies were based on a model that described the relationship between extrinsic motivators, social–psychological forces, and organizational climate as they relate to knowledge sharing. However, these studies did not consider the influence of social networking sites on attitude towards knowledge sharing, and as a consequence, empirical data describing this relationship is unavailable. The lack of information describing the impact brought about by the introduction of social networking creates a gap in our understanding of how social networking use affects our attitude towards knowledge sharing and poses a dilemma to a more comprehensive understanding of the knowledge transfer process. The impact of the readily available social networking technologies on attitude toward knowledge sharing and intention to share knowledge is unknown. An in-depth evaluation of this critical aspect will contribute to a more complete understanding of the factors that act as levers motivating knowledge sharing behavior, and more specifically, will answer the question does one's personal use of social networking sites motivate one's attitude to share knowledge in the workplace. This study modified the model used in earlier studies to include use of social networking sites as a possible influence on attitude towards knowledge sharing in the work environment. Such a model has not been empirically tested. This study investigated the role social networking plays as a motivating factor in one's inclinations to engage in sharing knowledge in the workplace. Because of a lack of complete understanding of the interaction between the variables in this area, the results of this study inform others of the relationship between employee social networking behavior and attitude towards knowledge sharing.

Dissertation Goal

The purpose of this research was to develop an understanding of the relationship between the personal use of social networking sites and one's motivation towards knowledge sharing in the workplace. The first dissertation goal was to conduct an in-depth analysis of survey data to determine if a statistically significant relationship exists between personal social networking usage and one's affinity to share knowledge in an organizational environment. The results of this study provide information to fill the gap in the current understanding of the factors motivating or inhibiting one's attitude towards knowledge sharing.

A second goal of this research study was to replicate and validate the study completed by Bock et al. (2005). In their study, they developed a research model based on the standard Theory of Reasoned Action (TRA) model, modified to incorporate two important characteristics. First, the modified model recognized that knowledge sharing involved collective action at its core, and second, that organizational climate either directly or indirectly influenced intention to share knowledge. From their research model, they developed nine hypotheses describing the relationship between the various behavioral components of their model.

HYPOTHESES SUPPORTED
H1: The more favorable the attitude toward knowledge sharing is, the greater the intention to share knowledge will be.
H3: The greater the anticipated reciprocal relationships are, the more favorable the attitude toward knowledge sharing will be.
H5: The greater the sense of self-worth through knowledge sharing behavior is, the greater the subjective norm to share knowledge will be.
H6: The greater the subjective norm to share knowledge is, the greater the intention to share knowledge will be.
H7: The greater the subjective norm to share knowledge is, the more favorable the attitude toward knowledge sharing will be.
H8: The greater the extent to which the organizational climate is perceived to be characterized by fairness, innovativeness, and affiliation, the greater the subjective norm to share knowledge will be.
H9: The greater the extent to which the organizational climate is perceived to be characterized by fairness, innovativeness, and affiliation, the greater the intention to share knowledge will be.
HYPOTHESES NOT SUPPORTED
H2: The greater the anticipated extrinsic rewards are, the more favorable the attitude toward knowledge sharing will be.
H4: The greater the sense of self-worth through knowledge sharing behavior is, the more favorable the attitude toward knowledge sharing will be.

Table 1. Results of Hypotheses Testing

The results of their study showed that seven of their initial hypotheses were supported while two were not supported (Table 1). It is important to revalidate the Bock 2005 study in light of the more recent introduction and widespread use of social networking sites.

Hypotheses

As a result of gaps in the research, it is not known whether personal habits and behavior regarding visiting social networking sites influences attitude towards knowledge sharing. Therefore, the purpose of this study was to investigate how the use of social networking sites influences attitude towards knowledge sharing.

Figure 1 depicts the research model evaluated in this dissertation. This model was modified from the model used by Bock et al. in their 2005 study, which they modified from the standard Theory of Reasoned Action model. This model incorporates three additional motivational factors potentially influencing attitude and intention to share knowledge in the workplace.

Powell (2012) observed that social networking sites offer something that email, telephone, and face-to-face communications do not: the ability to reach and be reached by a larger audience. Whereas emails may be trapped by spam filters, and phone calls and face-to-face communications have a limited audience, social networking sites are becoming ubiquitous, soliciting bi-directional dialogue among the participants that is likely to continue beyond the initial contact. There is the capability and the expectation for further communication, extending to an exchange of ideas beyond the scope of the reason for the initial social network site visit. This concept of knowledge sharing leads to the first hypothesis.

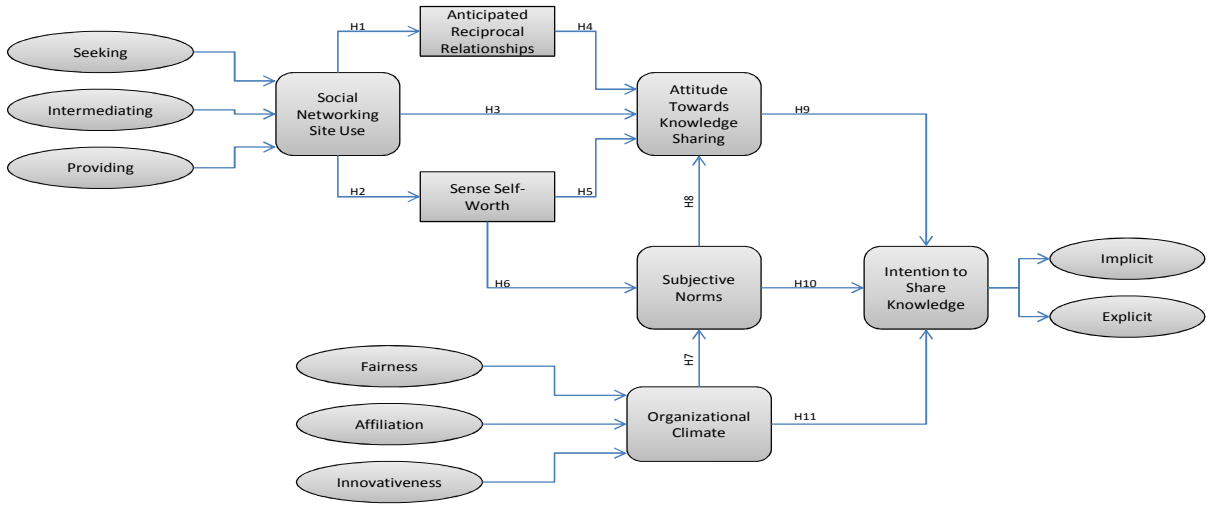

Figure 1. Conceptual Model

Hypothesis 1: The greater the use of social networking sites, the higher the expectation of extrinsic rewards.

Altruistic motivation assumes that an individual is willing to increase the welfare of others without any expectation of personal returns (Hsu & Lin, 2008). The perceived benefit to the individual is an increased sense of self-worth for having contributed something toward the betterment of others without receiving any reward in return. Through the use of social networking sites, an individual may share his individual knowledge with others without expecting anything in return except for the good feeling that results from having done something to help others. This leads to the second hypothesis.

Hypothesis 2: The greater the use of social networking sites, the greater the feeling of self-worth.

An individual may engage in a behavior for different and personal reasons. Personal motivational factors are positively related to one's attitude towards a behavior, which in turn influences the intention to engage in the behavior (Gagne, 2009). Personal motivational factors can encourage an individual to use social networking sites to exchange information with others, and this behavior can be reflected in one's attitude towards knowledge sharing, which can be hypothesized as follows.

Hypothesis 3: The greater the use of social networking sites, the greater the influence on one's attitude to share knowledge.

Huber (2001) observed that individuals who believe that knowledge sharing can improve their mutual relationships tend to have a positive attitude toward knowledge sharing. This observation results in the fourth hypothesis.

Hypothesis 4: The greater the anticipation of reciprocal relationships is, the more favorable the attitude toward knowledge sharing will be.

The process of reflected appraisal, according to Gecas (1971), contributes to the formation of self-worth. This process can also contribute to a feeling of competence (Covington & Berry, 1976), which is closely linked to effective performance (Bandura, 1978). Extending these behavioral linkages to knowledge sharing, one can propose the following hypothesis.

Hypothesis 5: The greater the sense of self–worth through the use of social networking, the more favorable the attitude toward knowledge sharing will be.

Huber (2001) believed that an individual's sense of self-worth can influence his behavior in the direction of the prevailing group and organizational norms. This suggests that an individual

with a high sense of self-worth based on his experience in sharing knowledge would be cognizant of the expectations of others regarding knowledge sharing and, thus, be more likely to comply with these norms. This leads to the sixth hypothesis.

Hypothesis 6: The greater the sense of self-worth through the use of social networking, the greater the subjective norm is to share knowledge.

Huber (2001) acknowledged that organizational climate is a critical driver of knowledge sharing in the workplace. This suggests that an organization that nurtures and encourages its employees to share their acquired and created knowledge with their colleagues provides an environment where knowledge sharing is more the norm than the exception. This concept of the organizational climate establishing the employee behavioral model to share knowledge leads to the next hypothesis.

Hypothesis 7: The greater the extent to which the organizational climate is perceived to accept social networking usage, the greater the subjective norm to share knowledge.

Lee (1990) stated that the more an individual becomes motivated to behave according to the group norm, the more the individual's attitude toward a particular behavior becomes influenced by the group norm than by the individual himself. The eighth hypothesis is an extrapolation of this concept to an individual's attitude toward knowledge sharing.

Hypothesis 8: The greater the subjective norm is to share knowledge, the more favorable the attitudes towards knowledge sharing.

According to Ajzen and Fishbein (1980), the intention to engage in a behavior is determined by an individual's attitude toward that behavior. Applying this concept to knowledge sharing,

where an individual's attitude toward knowledge sharing is defined as the degree of one's positive feelings about sharing one's knowledge, the next hypothesis can be stated as follows.

Hypothesis 9: The more favorable the attitude toward knowledge sharing, the greater the intention to share knowledge.

The subjective norm, according to Ajzen (1991), can be defined as the perceived social pressure to perform or not perform a behavior. Adapting this definition to knowledge sharing behavior leads to formulation of the tenth hypothesis.

Hypothesis 10: The greater the subjective norm is to share knowledge, the greater the intention to share knowledge will be.

Organizational climate has a direct influence on an individual's attitude and intention to behave in a particular way. If an organization's corporate climate strongly fosters an environment of encouraging employees to share their knowledge, the more likely an individual will be to engage in a knowledge sharing behavior (Bang et al., 2000). This results in the final hypothesis.

Hypothesis 11: The greater the extent to which the organizational climate is perceived to accept social networking usage, the greater the intention to share knowledge.

Relevance and Significance

This research resulted in significant implications for practitioners in the field of knowledge management, which cuts across essentially all professions today. This is most profoundly brought to light by the impact of information technology on conditions in the workplace. The reality is organizations today must continually strive to retain their corporate knowledge in order

to maintain their niche in the highly competitive global economy. However, the speed at which organizations must change in order to survive sometimes eclipses their ability to consistently manage these challenging conditions. The information age has redefined the notion of a static job where individuals were hired for their knowledge to perform a fixed set of tasks to a need for employees who have a collection of general competencies combined with the desire and capacity to learn and change as organizational needs change. The information technology age has also driven promotion of individuals to management and supervisory positions with high technical skills. In summary, today's organizational environments and work contexts present challenges that demand organizations negotiate a balancing act between maintaining acquired knowledge and rapidly changing to meet the needs of the future. As a result, organizations are in need of employees who can learn and quickly adapt from a knowledge base and turn this leverage into opportunities (Bakker & Schaufeli, 2008; Judge & Kammeyer-Mueller, 2011). Therefore, the practical implication of this study was two-fold: to provide evidence a relationship exists between use of social networking sites and information sharing and that this relationship can be extended to include attitude towards knowledge sharing in the workplace. The information from this study increases our understanding of these relationships and benefits organizations striving to survive and succeed in the rapidly changing modern information age. The study contributes to the existing body of knowledge established by Bock et al. on behavioral intention formation in knowledge sharing.

Knowledge transfer within an organization is one of the most critical aspects of any organization's knowledge management system. An understanding the motivational factors supporting an individual's willingness to share knowledge is essential to the organization's sustainability and success. Previous studies have looked at motivational factors such as

anticipation of extrinsic rewards, anticipation of reciprocal relationships, and sense of self-worth. The integration of social networking site usage and its impact on knowledge transfer provides a greater understanding of what societal effects motivate individuals to want to share their acquired or created knowledge in an organizational environment.

An understanding of how the personal use of social networking sites influences one's attitude towards knowledge transfer and, thus, one's intent to share knowledge in the organizational environment plays a critical role in the ultimate success of any corporate knowledge management system. Previous studies, while evaluating important motivating factors related to knowledge transfer, overlook the personal use of social networking sites as an enabling lever to promote knowledge transfer. The results of this author's research help to fill this knowledge gap by establishing a relationship between the use of social networking sites and one's attitude to share knowledge and, thus, one's intention to share knowledge.

Knowledge is possessed by individuals, so it is important to understand what motivates individuals to share their knowledge (Staples & Jarvenpaa, 2001). This research built on earlier studies including Bock and Kim (2002) and Bock et al. (2005). Their research model was modified for this study to incorporate the new motivational factor of social networking site usage. The results of this study were subjected to an in-depth evaluation to assess the influence the personal use of social networking sites has on one's attitude towards transferring knowledge in an organizational setting. More importantly, these results serve as the foundation for developing design principles for a corporate Knowledge Management System.

Barriers and Issues

There is an inherent difficulty in conducting any organizational study because of a general mistrust towards an outside entity posing questions regarding an organization's structure, policies, and procedures. Additionally, it is difficult to guarantee the generalization of research findings based on the scope of the organizations and the voluntary nature of the participants who take part in the survey. Another potential barrier was to identify a significant number of qualified respondents; persons who actively utilize social networking sites, and who are currently employed at organizations that have a functional knowledge management system. As with any research, there is always some uncertainty related to the outcome and what the results will reveal. If they are not what were expected at the outset of the research, there is some doubt as to whether the investigation was conducted correctly. In the case of a survey questionnaire, were the questions worded to skew the responses in one direction? Were all elements in the organizational unit being studied represented fairly? Was the number of responses to the questionnaire sufficient to provide a reasonable evaluation of the results, and can they be extrapolated into a general statement regarding the findings? A confirmatory factor analysis (CFA) was conducted to validate the questions, and a pilot study was then accomplished. Approval by the Institutional Review Board (IRB) was obtained before the survey questions were sent to the target audience.

According to Warner, (2008), the logic of Null Hypothesis, Significance Testing (NHST) specifies that the likelihood of a Type I error is predicated on a pre-defined alpha level and a single significance test. However, a single significance test is not always realistic in practice due to the need to conduct multiple significance tests as part of the research process, thus increasing the risk of a Type I error (Warner, 2008). Warner cites the need to address the increased risk of

making a Type I error when conducting a large number of significance tests. In this study bivariate correlations on all variables were examined prior to running regression analysis, resulting in k x (k-1)/2 correlations, where k=total number of variables, therefore 8(8-1)/2=28 correlations. As a result, the risk of committing a Type I error is potentially higher than the alpha level of .05 used in this study. Warner (2008) recommends using the Bonferroni correlation to limit the risk of committing a Type I error when conducting multiple correlation significance tests. The Bonferroni correction involves setting the per-comparison alpha (PCa) lower than the experiment-wise alpha (EWa) for each individual correlation. For the purpose of this study, the experiment-wise a, EWa = .05, so .05/36 = .001. The study also conducted two significance tests using regression analysis to test the moderating interaction between the different moderation factors. The Bonferroni correction was used to adjust the pre-comparison alpha level for each regression test. So, PCa = EWa/k, where k = 2 significance tests. Therefore, PCa = .05/2 = .025.

In addition to the survey and data collection phase, there was the difficult task of reviewing and analyzing the volume of collected data. Invariably some data was discarded because it was incomplete or inaccurate. A quantitative analysis was conducted on the data obtained during the research survey to determine if it supports the hypotheses stated in the Dissertation Goal section above. Each phase of this research presented its own challenges and difficulties and required time to complete. Thus, time was another significant barrier to be contended with. Despite these acknowledged issues, the results of this research contribute to and enhance the current body of knowledge on knowledge sharing and how it has been influenced by social networking.

Definition of Terms

Bivariate Correlation – a measure of the strength of the relationship between two variables, where the two variables exhibit either a positive or a negative relationship with respect to each other.

Bonferroni Correction – a method used to counteract the problem of multiple comparisons in order to maintain the familywise error rate.

Confirmatory Factor Analysis – a technique used in research to evaluate whether the constructs of a test will provide data consistent with the hypothesized model.

Correlation coefficient – see Pearson product-moment correlation coefficient.

Cronbach's Alpha – a coefficient of internal consistency that provides an estimate of the reliability of a test.

Dependent Variable – the variable that is being tested or observed in a scientific experiment; the state of the dependent variable is dependent on the state of the independent variables.

Efficacy – control of one's own behavior.

Employment Engagement – a measure of how much an employee is absorbed by and enthusiastic about his work, therefore causing him to take positive action to further the organization's reputation and interests.

Explicit Knowledge – knowledge that has been articulated, codified, and stored in certain media and, therefore, readily transmitted to others.

Independent Variable – the variable that is changed in a scientific experiment that is conducted to test the effect these changes have on the dependent variable.

Knowledge Sharing – the process through which information and skills can be exchanged among different communities of interest.

Knowledge Management – the process of capturing, developing, sharing, and effectively using organizational knowledge to effectively achieve organizational objectives such as improved performance, competitive advantage, innovation, the sharing of lessons learned integration, and continuous improvement.

Knowledge Transfer – a process that seeks to organize, create, and distribute knowledge, and ensure its availability for future users.

Likert Scale – a psychometric scale employing questionnaires where responses are scored along a range that indicates the intensity of the feelings for a given item.

Meta-Analysis – a statistical integration of data accumulated across many different studies, allowing researchers to determine whether validities and relationships can be generalized across various situations.

Partial Least Squares Regression – a statistical method used to determine relationships between two matrices.

Pearson Product-Moment Correlation Coefficient – a measure of the linear dependence between two variables, giving a value between +1 and -1 inclusive, where +1 is a total positive correlation, 0 is no correlation, and -1 is a total negative correlation.

Qualitative Analysis – the results of a research effort that generates non-numerical data; frequently used in research projects where the objective is to determine why a particular phenomenon occurred.

Quantitative Analysis – the results of a research effort that generates numerical data or information that can be converted into numbers; frequently used on research projects where the objective is to explain what is observed.

Regression Analysis – a statistical process used for estimating the relationship between a dependent variable and one or more independent variables.

Social Network – a structure made up of a set of individuals or organizations and the set of relationships between the members of the structure.

Structural Equation Modeling – a statistical technique used for testing and estimating causal relationships using a combination of statistical data and qualitative causal assumptions; SEM supports both confirmatory modeling (theory testing and validation) as well as exploratory modeling (theory development).

Subjective Norm – the perceived social pressure to engage or not to engage in a behavior.

Tacit Knowledge – the kind of knowledge that is difficult to transfer to another person by means of writing or verbalizing; effective transfer of tacit knowledge generally requires extensive personal contact, regular interaction, and trust.

Type I Error – the incorrect rejection of a true null hypothesis; an incorrect conclusion that an effect or relationship exists when it actually does not.

Type II Error – the incorrect failure to reject a false null hypothesis; an incorrect conclusion that an effect or relationship does not exist when it actually does.

Summary

The use of social media and social networking sites is an almost ubiquitous enabler that is fast becoming the vehicle that promotes the knowledge transfer process. However, not a lot of research has been conducted into what influences an individual to utilize social networking sites as a medium to exchange information. Social networking may be the new venue on which an effective knowledge management system is developed, but the question remains what causes a person to decide to use social networking sites as a means to transfer knowledge at work.

Chapter 2

Review of the Literature

Introduction

Knowledge management and, specifically, knowledge transfer are vital to the success of any organization. The following literature review describes what behavioral actions may affect one's inclination to use social networking sites, and to what degree these behaviors have been investigated in the past. Topics included in this discussion are Knowledge Management, Knowledge Sharing, Social Networks, and the Theory of Reasoned Action, all relevant issues and all supportive of this study. This literature review shows that, although the use of social networking sites is a very popular venue for exchanging information socially, there has not been much research into whether this has been translated into a means of transferring knowledge in the workplace. As stated earlier, the objective of this dissertation was to investigate what influences a person to use social networking sites to transfer knowledge in the workplace.

The Role of Theory in Research

To support his behavioral research, Fishbein (2000) developed a five-stage model that illustrates the interaction and dependency among the various factors influencing behavior. It is easy to determine behavioral outcome as a result of the influencing factors from this model. The benefit of this model is to assist in understanding how each variable affects behavior and using this understanding to develop an effective methodology to invoke change intervention to an undesirable behavior.

Following development of his model, Fishbein collaborated with Cappella (2006) to show the relevance of behavior theory in developing programs with the goal of promoting positive change

to less desirable behaviors. The result of these studies show how theories of behavior can assist in predicting behavioral change as well as help in identifying critical beliefs underlying a person's intention to perform, or not perform, a behavior.

Theory of Reasoned Action

The Theory of Reasoned Action (TRA), developed by Fishbein and Ajzen (1975), provides a model to enable prediction of behavioral intention. There are three general constructs to TRA: behavioral intention, attitude, and the subjective norm. This theory of behavior suggests that a person's behavioral intention is related to the person's attitude about the behavior and the subjective norm regarding the behavior.

TRA can be described by the following equation:

$$BI = AB + SN$$

where BI = the Behavioral Intention

AB = one's Attitude toward performing the Behavior

SN = the Subjective Norm related to performing the behavior

Thus the intention to perform a behavior is a function of attitude towards engaging in the behavior and perceived normative processes. Performing a behavior is a function of intention to perform the behavior (Ajzen & Fishbein, 1975), where attitude predicts intention and intention predicts behavior.

A study by Sheppard, Hartwick, and Warshaw (1988) provided a good background in the Theory of Reasoned Action (TRA). In the report of their study they provide a summary of past

research, including references to the work of Fishbein and Ajzen (1975), perhaps the seminal work in this field. They conclude their report by recommending that the original model developed by Fishbein and Ajzen be modified and evaluated in terms of motivational factors such as goal intention and choice situations, where the individual must choose between alternative courses of behavior. Additionally, in his research on TRA, Albarracin (2001) noted that attitude toward behavior is a function of one's belief that performing the behavior will lead to various outcomes and the evaluative aspects of these beliefs. Armitage (2001) conducted an in-depth study of the Theory of Planned Behavior (TPB). The results of this research lead to his conclusion that TPB is a valid predictor of intention and behavior. Godin and Kok (1995) also studied the theory of planned behavior applied to health-related behaviors. The results of their investigation showed that TPB performed well for explaining intention to perform a behavior, with perceived behavioral control being as important as attitude in health-related issues. They did observe a discrepancy between perceived and actual behavioral control, and noted that additional research was required to more fully understand this relationship.

In his investigation into different theories related to interpretation of health-related behaviors, Suh (2007) studied the influences of three different behavioral theories. In looking at TRA, he, too, noted that an individual's intention to perform or not perform a behavior was the best determinant of actual performance of the behavior. He surmised that intention is a function of a person's attitude towards the behavior and the person's perception of the social norms regarding the behavior. Later, when Ajzen incorporated self-efficacy (behavioral control) into his model, the theory of planned behavior (TPB) was developed. This theory added the dimension of how a person's perception of the ease or difficulty of performing the behavior, in other words, their perceived capability to perform the behavior. The third theory studied by Suh was the Trans-

Theoretical Model (TTM). This theory differs from the previous two by focusing on the individual's readiness to take action. The TTM behavioral model identifies five different stages an individual goes through: pre-contemplation, contemplation, preparation, action, and maintenance. This dissertation used the Theory of Reasoned Action because it provides the basic model to be used in evaluating if one's use of social networking sites influences one's attitude towards sharing knowledge in a work environment.

Knowledge Management

A number of studies have been conducted examining different aspects of knowledge sharing. A study conducted by Jantti and Kalliokoski (2010) investigated the types of knowledge management challenges related to service desk functions. This study provided valuable results, but was handicapped due to shortcomings in the methodology under which the study was conducted. Another case study examined the challenges facing service-oriented organizations, and how they related to the core aspects of knowledge management, specifically, how knowledge is created, shared, stored, and used (Jantti, Tanskanen, & Kaukola, 2009). This was an enlightening case study, but again, was limited by the fact that the study focused solely on a single business unit. A study by Walumbwa, Luthans, Avey, and Oke (2009), focused on which attributes feature in a successful knowledge management process. One attribute identified was authentic leadership involving mutual trust among knowledge shareholders. Another important attribute they identified was group behavior and group professionalism. Obviously, both attributes are critical parameters and play an important role in successful knowledge management processes, but fail to address the important role social networking plays.

Social network analysis has received a lot of interest in recent times. Although the nature and impact of public social networks have received a lot of attention, very little has been directed to the characteristics of enterprise social networks. The key challenge to understanding enterprise networks is the fact that enterprise data is usually not available outside of the enterprise. Also, much of the internal reporting concentrates on knowledge usage rather than on access to knowledge (Limpen, Gandon, & Buffa, 2010).

Yang, Chen, Huang, and Fan (2007) addressed the importance of various components of social capital, such as trust and social interaction and how these factors influence knowledge contributions to electronic knowledge repositories. They found that trustworthiness in a social network is characterized by infrastructure, understanding, and policy. Their research efforts assumed the possibility of technical augmentation to the way communities share knowledge through social networks, and observed that this is accomplished in feasible collaborative ways. They noted that much work is still needed in this area, specifically, to investigate special requirements from different networks for social networking.

Richter and Koch (2008) defined social networking services as systems that provide the following basic functionalities: identity management, expert finding, context awareness, contact management, network awareness, and information exchange. Hustad (2004) observed that today organizations must be able to maintain and reproduce their own core competencies, regardless of geographical distances separating organizational offices. This has become increasingly important because of the shift from an industrial economy to a knowledge-based information economy, and could be a driving force in the development of social networks. Companies now realize they must be able to utilize their knowledge potential in order to leverage their strengths in today's highly competitive world. They must be able to collaborate globally between

geographically dispersed offices. This presents a particular challenge for knowledge transfer where customs, cultures, and etiquette may differ within the organization itself. Investigating communities of knowledge may provide an insight into the knowledge transfer process, and provide an indication as to the degree of knowledge transfer that occurs among these globally dispersed offices. Hustad also noted that cultural differences, lack of personal face-to-face communications, and trust building all offer challenges to the globalization of knowledge transfer.

Knowledge Sharing and Social Networks

As mobile devices enter a new era with high speed connectivity and increasing capabilities, a new class of community-based social networking mobile applications is emerging, enabling each user to contribute his knowledge (Liu, Krishnamachari, & Annavaram, 2008). Powell observed in 2012 that more employee time is being spent on social networks, indicating they are fast becoming the next communications tool. This fact highlights an interesting concept of whether the use of social network sites influences attitudes toward knowledge sharing in the workplace, and why this should be an issue of high importance to organizational management. The dramatic rise of social networking sites has ignited the discussion on the effectiveness of legislation regarding privacy concerns. Today's network computing and communications technologies have radically changed how information, knowledge, and culture are produced and exchanged. This invariably leads to a discussion of privacy, where the challenges of authorship and quality control of the knowledge repository must be addressed (Sabin & Leone, 2009).

Sharma, Land, Jordan, and Swain (2010) explored how people learn in the context where free-choice is the dominant focus, and includes participation in social networks. The

significance of their investigation lies in its contribution to the growing literature on lifelong, informal learning, and includes online spaces where people voluntarily go to learn and to participate in a shared goal or activity. Neumann, Hogan, and MacDonaill (2005) provided guidance for emerging research into online communities and human resource management as it relates to knowledge sharing. In their article, they point out that this area is ripe for research because there is a serious lack of literature in this field. They note that the Internet has enabled a communications ability to send and receive information everywhere, changing the way we work and live. A logical extension to this is an investigation of the capabilities to extend knowledge transfer. They observed how social networks have become an increasingly popular venue for online collaborative knowledge management, social participation in online environments through identification, and motivation to contribute and share experience and discover expertise in the organization. They conclude that social networks in collaborative environments stimulate the motivation to learn in the community. Gruber (2008) characterized knowledge collection systems as those which performed the following functions: the production of content performed by users; a synergy between users and the system; and an increasing benefit related to the size of the domain covered. These three characteristics identify a collective system of intelligence. He advocated that progress in sharing knowledge can be achieved through an integration of the technologies available through social networking today.

In 2008, Chow and Chan conducted a study on social networks and their relationship to social trust and shared goals. This study paralleled an earlier study (Bock et al., 2005) using a similar model. Their results showed that social network users did not distinguish between tacit and explicit knowledge, and that shared goals contributed significantly to attitude but only indirectly

on intention to share knowledge. This study was conducted over five years ago, before the more recent surge in the use of social network sites.

Tziahanas and Crespolini (2012) investigated the role of information compliance and regulatory governance on the use of social media. They noted that social network sites present unique opportunities to share knowledge. Social networks and the Internet provide unparalleled opportunities for the rapid knowledge exchange and dissemination among many people. This knowledge exchange capability does not come without risk, and users have an obligation to understand the nature, benefits, and consequences of participating in social networking. As an example, online context and behavior have the potential to enhance or undermine the user.

Inkpen and Tsang (2005) examined how three types of networks, intra-corporate networks, strategic alliances, and industrial divisions, are affected by knowledge transfer. The results of their research identified structural, cognitive, and relational conditions as the dimensions most profoundly affecting knowledge transfer in the organizational environment. Based on these findings they were able to establish the set of conditions that could promote knowledge transfer for the network types.

Similarly, Reagans and McEvily (2003) investigated how network structure and the effects of cohesion and range affect knowledge transfer. The focus of their research was to look at how network structures influence the knowledge transfer process. They found that social cohesion around a relationship affects employee willingness and motivation to invest time, energy, and effort to share knowledge with others. They further discovered that network range, that is, ties to different knowledge pools, has a positive effect on a person's ability to convey complex ideas to heterogeneous audiences. Their research indicated both social cohesion and network range are

more significant factors in facilitating knowledge transfer than the strength of the relationship between two individuals.

Smith (2009) investigated the critical issues of knowledge retention, prevention of knowledge attrition, and employee willingness to share knowledge within an organization. This work was a follow-on to his previous study (Smith, 2003) where he developed an organizational model depicting the social interactions affecting knowledge transfer within an organization. In his later investigation, Smith observed that many of the problems associated with knowledge management systems is that they are being developed in isolation from the social systems within the organization. He points out that ignoring social networks already in place will doom a knowledge transfer program to failure. Acknowledging these systems will provide an environment where the infrastructure that encourages knowledge sharing is already in place, and the climate is conducive for knowledge transfer within the organization.

Knowledge Sharing

An organization's culture shapes the behavior of its employees (DeLong & Fahey, 2000). A case study by Hertlein, Smolnik, and Riempp (2010), investigated how knowledge within a company is transferred from one sub-organization to another. This study found that organizations that successfully employ knowledge management depend on a constant exchange of knowledge. So a strategy for encouraging and managing knowledge transfer is crucial to its effectiveness. Although a very useful study, it did not investigate the important knowledge transfer aspect of how to encourage knowledge stakeholders to share their valuable assets. Other studies have compared knowledge sharing across different ethnic cultures, within different corporate cultures, and in virtual communities. One study identified eight principles that

contribute to the implementation of a successful knowledge sharing program, but did not look at how the emergence of social networking has contributed to this trend (Chiu, Hsu, & Wang, 2006). Andrews and Delahaye (2000) investigated knowledge sharing between individuals as a process that contributes to both individual and organizational learning, observing that knowledge sharing must be an act voluntarily entered into by the individual knowledge holder.

An individual's knowledge is sometimes linked to his or her value to an organization, and thus, to one's income. This can create an environment where an individual is reluctant to share knowledge for fear this could result in a diminished value to the company (Empson, 2001). Motivational factors influence knowledge sharing (Stenmark, 2001). How social networking can motivate an individual to share his knowledge is a question warranting further in-depth study.

According to Wu, Lin, and Lin (2006), knowledge is accepted as one of the most critical resources in modern society, reducing the production element to a secondary position at best. Additionally, knowledge sharing provides the path to gaining competitive advantages benefiting the organization. Further, the use of virtual teams is increasingly becoming a part of everyday work life for businesses due to the emergence of information technology and network telecommunications. The question to be asked is how much does social networking influence the knowledge transfer process. Finally, knowledge sharing, which is information whose validity has been established through tests of proof, has emerged as a strategically significant resource for organizations. Lin (2007) conducted a study to examine the influence of individual motivational factors and organizational motivational factors on attitudes towards sharing knowledge. The results of her research showed that two individual factors, enjoyment in helping others and knowledge self-efficacy, and one organizational factor, management support, contributed significantly to knowledge sharing. An established model for conducting future

research into knowledge sharing behavior is the Absorptive Capability Theory, established by Cohen and Levinthal (1990).

Effective leveraging of organizational knowledge resources can insure that the right knowledge is available to the right people at the right time, and improve the quality of decision-making (He & Wei, 2009). They studied the contributions of knowledge contributors and knowledge seekers in the knowledge sharing process. The results of their study showed that knowledge contributors share knowledge because of social relationships, enjoyment in helping others, and management support. Knowledge seekers use these networks more for social relationships and not as much because of organizational rewards or management support.

While not discounting the positive benefits of knowledge sharing, Tsai (2001) pointed out that not all organizations, even subunits of the same organization, are able to absorb the knowledge that is being made available to them. Perhaps due to their limited capacity to fully appreciate the knowledge to which they have access, some organizations may find they require linkages to external sources of information to complement their internal knowledge base. This is important information for knowledge management systems developers to understand. Although, an organization may have established a centralized network to store knowledge making it easily available to all units in the organization, the units must possess a high learning capacity in order to successfully absorb and apply the knowledge that is available.

In order to achieve effective knowledge sharing, it is necessary first to understand the inner network structure of an organization (Guo & Chen, 2010). Since information exchange and knowledge sharing are based on a certain degree of social networking, it is important for an organization to develop and promote information sharing channels between knowledge owners

and others who wish to tap into this valuable knowledge resource. Effective sharing of critical information is a fundamental objective of enterprises seeking a competitive advantage in an increasingly global market. Virtual teams represent a new form of organization that offers higher levels of flexibility and responsiveness. These virtual teams depend almost exclusively on effective knowledge sharing across traditional geographic boundaries (Harden, 2012).

Social network analysis has received a lot of interest in recent years however very little attention has been given to documenting the characteristics about enterprise social networks. This lack of information, to a great extent, has been due to the fact that enterprise data is usually proprietary in nature and, therefore, not available outside the organization. Raj, Dey, and Gaonkar (2011) attempted to develop a model to predict performance of social networking in an enterprise environment, based on user responses to questions. Razavi and Iverson (2006) investigated their theory of information sharing aimed at formulating a small-scale, focused theory based on the continuous interplay between analysis and data collection. Their approach had been recommended in the literature as the appropriate method when the researcher was trying to construct a theoretical framework based on reality. This method is helpful when developing theory, and enhances the ability to prove it. The results of this type of research methodology are research propositions and hypotheses; in other words, theory concepts are suggested but not proven. Their research data collection consisted of determining what types of information are shared and why, what categories of information are perceived to need protection, what factors shape this perception, are current privacy management mechanisms sufficient, or if not, what are the problems, and finally, what are the differences in the ways information is shared with different groups and communities of interest? Their analysis helped to identify the basic social processes that are the core concepts around which theory is built. Results of their

investigation point to future work, specifically areas where cooperative-competitive behaviors are different.

Gagne (2009) developed a model to study knowledge sharing based on a combination of Theory of Planned Behavior (TPB) and Self-Determination Theory (SDT). Her research focused on the motivational processes affecting knowledge sharing behavior. She noted that most empirical research on knowledge sharing had used case studies or qualitative methodologies. She went on to recommend future research on knowledge sharing motivators should be based on quantitative methods to test existing models of knowledge sharing behavior, and to suggest new models to more accurately represent the motivational factors.

Knowledge sharing can be accomplished either by pushing or by pulling, and both methods require distinct enabling mechanisms. Tang, de Boer, and van Vliet (2011) investigated these methodologies. They observed that consumers of knowledge either search a knowledge data base directly, or receive notifications when relevant knowledge becomes available. The results of their study revealed that the sharing of this knowledge is not being accomplished effectively.

Knowledge Management and Knowledge Sharing

Wah, Loh, Menkhoff, and Evers (2005) reviewed an earlier model of knowledge management and knowledge sharing in an effort to address a known gap in the understanding of these two phenomena. Their investigation looked at social psychology, organizational behavior, and existing literature on knowledge management, which included discussions of both tacit and explicit knowledge. They developed a five-term measure to analyze a person's propensity to share knowledge. Their controls included age, full-time work experience, and gender. They concluded their study by suggesting that contemporary organizations need to institute an

environment conducive to promoting knowledge sharing. Lee (2000) observed that knowledge sharing is a fundamental knowledge management process. The ability to share knowledge across an organization can lead to the creation of new knowledge, resulting in best practices being achieved throughout the organization. To evaluate the extent to which knowledge transfer is being accomplished in an organization, Lee suggested the use of quantitative measures. Metrics assist in the ability to measure knowledge management performance and demonstrate knowledge management practices and results. Lee goes on to explain that explicit knowledge is knowledge that has been codified, articulated, and published. Knowledge sharing is mostly achieved through tacit-to-tacit communication. Following his investigation of knowledge sharing processes, Lee observed that data collection through surveys can only be replicated at relatively infrequent periods, annually at best. Finally, Lee that found that tacit-to-tacit knowledge transfer accounts for over 90% of true knowledge sharing; however, over 90% of current knowledge management metrics focus on tacit-to-explicit knowledge transfer.

Hsu and Lin conducted a multi-faceted study in 2008 to increase the understanding of factors contributing to blog usage. They observed that ease of use and personal enjoyment ranked high as motivational factors, whereas perceived usefulness contributed only minimally as influencing blog usage. Surprisingly, they found that intent to share knowledge had no significant effect. They also found that users liked to blog because of their community identification. In difference to what the TRA and TPB models suggest, blog users participated because it gave them a sense of belonging.

Trans-National Knowledge Networks are becoming increasingly used to address common problems on a global scale. Unfortunately, according to Gharawi and Dawes (2010), there is little research accomplished to date that empirically addresses the complexities surrounding the

knowledge and information sharing that represents the main processes in these networks, and especially how does social networking contribute to the knowledge sharing process promulgated by these transitional knowledge networks.

Employee Engagement

In 1990, Kahn developed his theory of employee engagement, based on the idea that the process of engagement involves worker self-expression in their work roles and in a way that expresses their true identities, similar to role theory. The opposite of this behavior is disengagement, where the employee withdraws in an attempt to prevent his true identity from being identified from his work role. Harter, Schmidt, and Killham (2003) conducted a meta-analysis of looking at data from several studies of employee satisfaction. Their analysis focused on identifying linkages between employee engagement, satisfaction, and business-unit-level outcomes. Kahn asserts it is the employee's evaluation of three psychological conditions which guides his decision to engage or disengage in the workplace. According to Kahn, these three psychological factors are availability, safety, and meaningfulness, and each is influenced by several critical factors related to the workplace. Psychological availability is influenced by an employee's evaluation of the availability of physical, cognitive, and emotional resources as well as his level of confidence in his ability to access these resources. Psychological safety is influenced by interpersonal relationships that offer support, trust, openness, and lack of threat. Additionally, a supportive leadership and an environment where the organizational norms provide shared expectations of member behavior affect one's feeling of psychological safety. Finally, psychological meaningfulness is influenced by job tasks that are characterized by challenge, variety, status, as well as interactions that provide a feeling of self-esteem, dignity, appreciation, and competence. An employee's positive evaluation of these three external

influences leads to employee engagement by devoting one's physical, cognitive, and emotional energies to authentically represent oneself in his work role. The entire employee engagement process consists of the interweaving of self-evaluation and appraisal, coping strategy, and personal motivation.

Meyer and Gagne (2008) investigated employee engagement from a self-determination theory (SDT) perspective. Their findings helped them define what employee engagement really is and how it differs from other organizational constructs. For example, they point out the difference between employee engagement and work motivation. They observed that individuals who were engaged in what they are doing also tend to experience greater physical and psychological well-being than those who are negatively motivated (withdrawn), measured by task-relevant behavior.

Summary

All research necessarily includes a thorough review of published information of the issue to be studied. A thorough review of literature related to knowledge management, specifically knowledge transfer, was conducted prior to this research being undertaken. Specific areas reviewed were the role of theory in research, theory of reasoned action, knowledge management, knowledge sharing and social networks, knowledge management and knowledge sharing, and employee engagement. After completing this review, the researcher developed his research methodology discussed in the next chapter.

Chapter 3

Methodology

Introduction

This chapter describes the methodology used to carry out this quantitative research project. The basic approach was a non-experimental study based on steps validated in an earlier study (Bock & Kim, 2002). Research data was collected by means of a survey instrument using a self-administered questionnaire. Description of the survey population is discussed next and the data analysis techniques explained using Partial Least Squares regression procedures. This section of the dissertation report is divided into three subsections, each addressing specific aspects of the research methodology (Figure 2). Following this brief introduction, subsection 2, which describes the research approach used, is further broken down into three discussions, first, of the survey instrument, second, of the data collection process, and third, of the data analysis process. Subsection 3 identifies the resources that were used to complete the research.

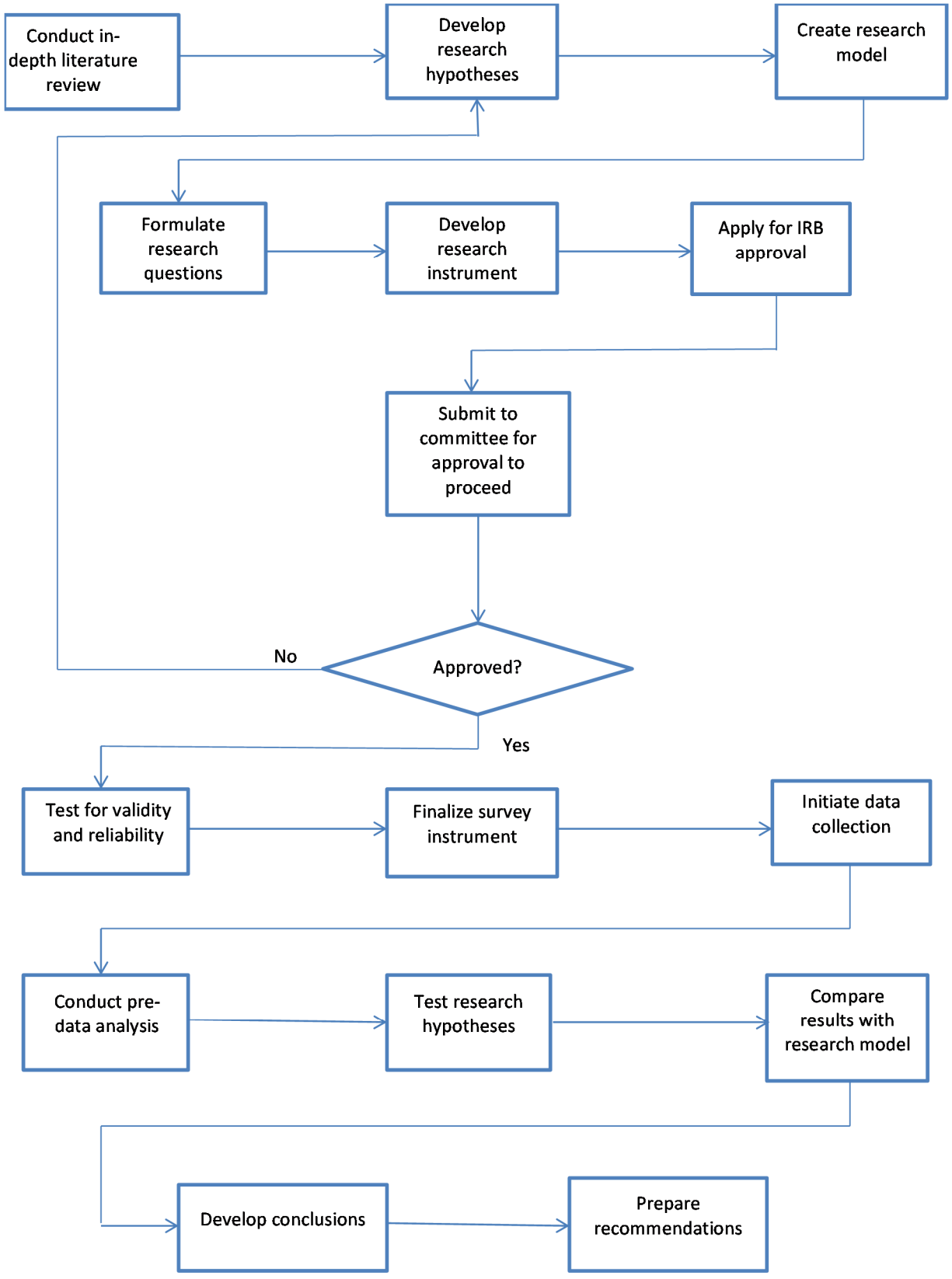

Figure 2. Research Methodology

Approach

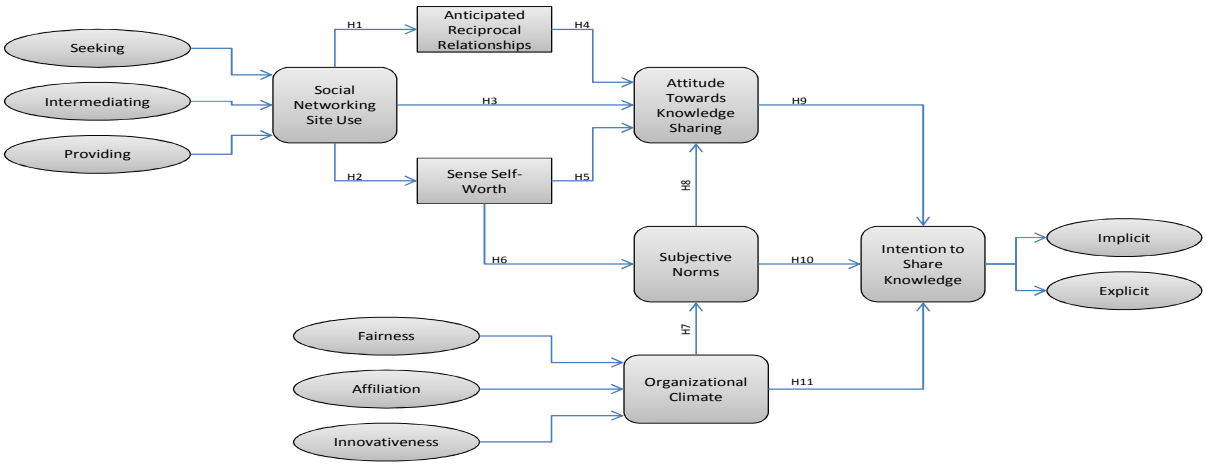

Figure 3. Conceptual Model

This research incorporates the following six independent variables (IV):

- Use of social networking sites (IV 1)
- Anticipation of reciprocal relationships (IV 2)
- Sense of Self-worth (IV 3)
- Attitude towards knowledge sharing (IV 4)
- Subjective norm (IV 5)
- Organizational climate (IV 6)

These six independent variables were the control variables, and their effect on the dependent variable, intention to share knowledge, was observed.

Figure 3 illustrates the following relationships. Hypothesis 1 is influenced by independent variable 1. Similarly, hypothesis 2 is influenced by independent variable 1. Independent variables 1, 2, and 3 influence hypothesis 3. Hypothesis 4 is influenced by independent variable 2. Hypotheses 5 and 6 are influenced by independent variable 3. Hypothesis 7 is influenced by independent variable 6. Independent variable 4 influences both hypotheses 8 and 9. Hypothesis 10 is influenced by independent variable 5, and independent variable 6 influences hypothesis 11.

Visiting social networking sites provides a venue to make new acquaintances. Occasionally this may lead to an expectation for interpersonal communications leading to an exchange of ideas beyond the scope of the reason for the initial social networking site visit. This concept of knowledge sharing leads to the first hypothesis.

Hypothesis 1: The greater the use of social networking sites, the higher the expectation of extrinsic rewards.

Altruistic motivation assumes that an individual is willing to increase the welfare of others without any expectation of personal returns (Hsu & Lin, 2008). The perceived benefit to the individual is an increased sense of self-worth for having contributed something toward the betterment of others without receiving any reward in return. Through the use of social networking sites, an individual may share his individual knowledge with others without expecting anything in return except for the good feeling that results from having done something to help others. This leads to the second hypothesis.

Hypothesis 2: The greater the use of social networking sites, the greater the feeling of self-worth.

An individual may engage in a behavior for different and personal reasons. Personal motivational factors are positively related to one's attitude towards a behavior, which in turn influences the intention to engage in the behavior (Gagne, 2009). Personal motivational factors can encourage an individual to use social networking sites to exchange information with others, and this behavior can be reflected in one's attitude towards knowledge sharing, which can be hypothesized as follows.

Hypothesis 3: The greater the use of social networking sites, the greater the influence on one's attitude to share knowledge.

Huber (2001) observed that individuals who believe that knowledge sharing can improve their mutual relationships tend to have a positive attitude toward knowledge sharing. This observation results in the fourth hypothesis.

Hypothesis 4: The greater the anticipation of reciprocal relationships is, the more favorable the attitude toward knowledge sharing will be.

The process of reflected appraisal, according to Gecas (1971), contributes to the formation of self-worth. This process can also contribute to a feeling of competence (Covington & Berry, 1976), which is closely linked to effective performance (Bandura, 1978). Extending these behavioral linkages to knowledge sharing, one can propose the following hypothesis.

Hypothesis 5: The greater the sense of self–worth through the use of social networking, the more favorable the attitude toward knowledge sharing will be.

Huber (2001) believed that an individual's sense of self-worth can influence his behavior in the direction of the prevailing group and organizational norms. This suggests that an individual

with a high sense of self-worth based on his experience in sharing knowledge would be cognizant of the expectations of others regarding knowledge sharing and, thus, be more likely to comply with these norms. This leads to the sixth hypothesis.

Hypothesis 6: The greater the sense of self-worth through the use of social networking, the greater the subjective norm is to share knowledge.

Huber (2001) acknowledged that organizational climate is a critical driver of knowledge sharing in the workplace. This suggests that an organization that nurtures and encourages its employees to share their acquired and created knowledge with their colleagues provides an environment where knowledge sharing is more the norm than the exception. This concept of the organizational climate establishing the employee behavioral model to share knowledge leads to the next hypothesis.

Hypothesis 7: The greater the extent to which the organizational climate is perceived to accept social networking usage, the greater the subjective norm to share knowledge.

Lee (1990) stated that the more an individual becomes motivated to behave according to the group norm, the more the individual's attitude toward a particular behavior becomes influenced by the group norm than by the individual himself. The eighth hypothesis is an extrapolation of this concept to an individual's attitude toward knowledge sharing.

Hypothesis 8: The greater the subjective norm is to share knowledge, the more favorable the attitude toward knowledge sharing.

According to Ajzen and Fishbein (1980), the intention to engage in a behavior is determined by an individual's attitude toward that behavior. Applying this concept to knowledge sharing,

where an individual's attitude toward knowledge sharing is defined as the degree of one's positive feelings about sharing one's knowledge, the next hypothesis can be stated as follows.

Hypothesis 9: The more favorable the attitude toward knowledge sharing, the greater the intention to share knowledge.

The subjective norm, according to Ajzen (1991), can be defined as the perceived social pressure to perform or not perform a behavior. Adapting this definition to knowledge sharing behavior leads to formulation of the tenth hypothesis.

Hypothesis 10: The greater the subjective norm is to share knowledge, the greater the intention to share knowledge will be.

Organizational climate has a direct influence on an individual's attitude and intention to behave in a particular way. If an organization's corporate climate strongly fosters an environment of encouraging employees to share their knowledge, the more likely an individual will be to engage in a knowledge sharing behavior (Bang et al., 2000). This results in the final hypothesis.

Hypothesis 11: The greater the extent to which the organizational climate is perceived to accept social networking usage, the greater the intention to share knowledge.

Throughout this study, the author's research continued to identify all relevant material developed through research accomplished by others in the field. The in-depth literature review assisted in formulating the questions that comprised the questionnaire used to collect data for this study. Continuation of the literature review provided additional background information on knowledge sharing and the use of social networking sites. Although considerable reference

material does exist describing in detail the efforts to encourage knowledge sharing, little or no prior research had specifically addressed the possible effects of social networking sites on intent to share knowledge. The literature review substantiated the fact that further investigation was warranted. By addressing this gap, this study added to the body of knowledge regarding knowledge sharing and, specifically, how the use of social networking sites influences the knowledge transfer process.

This study used the non-experimental, cross-sectional correlational research design (Leedy & Ormrod, 2013) to investigate how the use of social networks influences the relationship between a person's social networking behavior, that is, in what way and how frequently he uses social networking sites, and his attitude towards knowledge sharing in the workplace. Although factors affecting knowledge sharing have been studied in the past, no prior research had specifically addressed the role of social networking sites on attitude toward knowledge sharing in the workplace. This research filled this gap in the understanding of knowledge sharing behavior.

Survey Instrument Design

The questions comprising the survey instrument (Appendix A) used to collect data for analysis in this study were adapted, with his permission (Appendix B) from an earlier study by Dr. Bock in his research reported in the Management Information Systems Quarterly, March, 2005. The fact that these research questions have already been validated by a noted researcher in this field lends credence to the fact that they are appropriate for follow–on investigation into how social networking influences people to share knowledge. The study by Fishbein and Ajzen (1975) provided the basis for the questions related to attitude and subjective norm. Other questions were adapted from studies related to organizational climate. The questions were

modified, as necessary, to align with the knowledge sharing theme of this study. Questions related to the dependent variable intention to share knowledge were adapted from the 1975 study by Fishbein and Ajzen. This provided a thorough background in the history, evolution, and current status of knowledge management and, specifically, knowledge sharing.

The specific questions in the survey instrument were divided into five categories. These categories evaluated each of the six independent variables, and an analysis of the results provided the information needed to ascertain if the hypotheses could be supported. The questions in Part 1 of the questionnaire, Knowledge Sharing Behavior, address independent variable 1. The questions in Part 2, Intention to Share Knowledge, address independent variable 3. Independent variable 2 is addressed by the questions in Part 3, The Individual's Beliefs. Part 4 of the questionnaire, Attitude toward Knowledge Sharing, address independent variable 4. Part 5 of the questionnaire, Organizational Climate, addresses independent variable 6. Independent variable 5 is addressed by the last questions in Part 3 and Part 5.

Validity

A research instrument must be assessed for both validity and reliability prior to its use in research, and is necessary to reduce measurement errors (Malmgreen, 2005). Validity answers the question "does the survey instrument measure what it is supposed to measure?" The problem arises when the wrong variables are measured, or when the survey instrument does not measure what it was designed to measure.

Reliability answers the question "does the survey instrument provide consistent results every time it is used to collect survey data?" This problem becomes significant when the results are not consistent. This can be observed when the Cronbach's Alpha is less than 0.7.

Hair et al. (1998) defined instrument validity as a measure of the extent to which the survey instrument measures, or evaluates, what it was intended to measure. In assessing validity, the questions that should be asked are (1) does the survey instrument relate to the subject matter of the study, in other words, to the hypothesized model?, (2) does the survey instrument actually measure what it was intended to measure?, (3) is the sample population sized appropriately?, and (4) does the survey instrument cover all of the research areas sufficiently to gather enough information to evaluate the hypothesized model?

Establishing the validity of the survey instrument is a critical step in conducting any research study. Validity can be addressed as both internal validity and external validity. Sekaran (2003) addressed internal validity as a measure of the confidence the researcher has in his research tools. He went on to define external validity as the degree of confidence the researcher has in generalizing the results of his research to other external environments.

The internal validity of the survey instrument was assessed by means of a Confirmatory Factor Analysis (CFA). This analysis showed that the all measured items converge to their construct with each factor having a value greater than 0.7 (Chow & Chan, 2008). Subject matter experts in the research area were consulted, and their inputs were used to refine the questionnaire. A confirmatory factor analysis was used to determine the validity of the research instrument. Cronbach's Alpha was used to evaluate the reliability of the questionnaire, with a value of 0.7 or greater indicating an acceptable level of reliability.

A pilot study was used to assess the questionnaire and identify any questions that should be reworded or deleted. When the revisions had been incorporated, the final survey instrument was

used to collect data for evaluation against the hypotheses (Strachota, Schmidt, & Conceicao, 2006).

Reliability

Internal consistency, or reliability, were assessed using Cronbach's Alpha, where a value greater than 0.7 indicates the constructs of the survey instrument provide consistent results. Polit and Beck (2004) noted that the reliability of an instrument is a property not of the instrument itself but of the instrument when administered to a certain sample under a certain set of conditions. Thus, the reliability of the instrument could potentially change, depending on the application. On the other hand, Polit and Beck (2004) observed that the validity of the instrument rarely changes. Reliability requires evaluation of both stability and internal consistency of the research instrument.

Pilot Study

The validity and reliability of the survey instrument were assessed during the pilot study. This was essentially an initial data gathering process, where the survey instrument was evaluated for its validity and reliability. As discussed above, the purpose of a pilot study was to verify that the survey instrument consistently measured exactly what it was supposed to measure. Reliability was evaluated by collecting data from a small representative sample of people.

Assessing the validity of the survey instrument prior to its use is a very important step in the research process (Evergreen, Gullickson, Mann, & Welch, 2011). As stated earlier, the questionnaire was submitted to a panel of content experts and reviewed for relevance and clarity. The literature recommends a panel of from 2 to 20 reviewers. Responses from the participants in the pilot study were evaluated by the researcher and the panel of subject matter experts to

determine if the questionnaire was appropriate for this study. Specifically, participant responses assisted the researcher to determine if the questionnaire related to the purposes of this research, and would support the research objectives. Secondly, was the questionnaire comprehensive enough to collect all of the information needed to fully address the purpose and goals of the study (Radhakrishna, 2007). The objective of this step was to produce a valid survey instrument. The systematic approach to validate the proposed research instrument, as outlined here, was the first step in this research project (Malmgreen, 2005).

Data Collection

All data for this study was acquired using the survey method of data collection. The data collection phase included a preparation phase and an administrative phase. Prior to starting the data collection phase, the researcher contracted with a service provider for hosting the survey instrument. The survey questionnaire, which was administered by the service provider, was designed by the researcher in accordance with the following outline:

- An introduction to the study, and an informed consent (Appendix C)
- Participant's demographic information
- Participant's social networking behavior
- Participant's attitude towards knowledge sharing
- Thank you for voluntarily participating in this study

Each question in the survey instrument included a five-level Likert scale. Additionally, every question provided an option for "no response" or "prefer not to respond". A survey where the respondent cannot proceed without answering the question is in violation of the respondent's

right to withhold information (SurveyMonkey, 2013). After initial design of the survey instrument was complete, the researcher personally took the survey to test the site login process and for correct functioning of the survey. Following the researcher's initial test of the site, 25 people were asked to take the survey and provide feedback regarding any problems or issues with the survey instrument. Next, data collection proceeded to the administrative phase.

The survey was self-administered by participants via an on-line web site. IRB approval was granted by Nova, the researcher coordinated with the service provider to begin electronic distribution of the survey instrument and solicit responses from survey participants. The survey request contained an Informed Consent notification (Appendix C). The survey requested participants complete the questionnaire by the specified date. Follow-up requests were sent if the initial request did not result in a sufficient number of responses. At the conclusion of the survey, access to the link was terminated.

The population from which the survey participants for this study were drawn was randomly selected from a cross-section of working age persons in America, from post high-school to pre-retirement. To avoid limiting the study to only a specific age group, the survey population included workers at all levels of their working career. Also, the survey population did not target a specific industry, but included workers in a diverse group of professions. Potential participants were filtered by means of the following qualifying questions to eliminate those who could not provide meaningful responses to the questionnaire. The qualifying questions were: (1) Do you use electronic social networking sites? (2) Do you exchange information while visiting these sites, or just view them? The responses to these questions were evaluated to determine if the respondent's behavior with social networking sites was pertinent to this study. Analysis of the survey results then determined if a specific age group or job profession was more likely to

incorporate social network sites and knowledge sharing as part of their culture climate. For the purpose of this study, all respondents lived and worked in the U.S.

Sample sizes ranging from 200 (Pati & Kumar, 2010) to well over 19,000 participants (Harter, Schmidt, & Hayes, 2002) have been used in research. According to Warner (2008), sample size is a function of power, the alpha level, and effect size. The sample size requirements for the proposed study were determined based on the two statistical procedures proposed for testing the hypotheses for the study: Pearson correlation, and Partial Least Squares regression analysis. Warner (2008) cites several recommendations for calculating sample size based on the correlation coefficient, and alpha level. An alpha level of .05 has been used in various research studies on employee engagement to include May, Gilson, and Harter's (2004) exploratory study to test Kahn's (1990) theory on employee engagement. According to Warner's (2008) recommendation on calculating sample size for correlation analysis, a G*Power analysis using alpha = .05, one-tailed, a medium effect size r=.30, and power=.80 results in a minimum sample size of 67, resulting in a critical r of .202 or 20% chance of committing a Type II error. However, Warner recommends using at least 100 participants in order to ensure sufficient statistical power for correlation analysis. Warner (2008) cites that the minimum sample size in regression analysis is determined by the number of predictor variables involved in order to achieve adequate power to detect an effect. According to Warner (2008), the minimum desirable number of participants for testing the significance of regression analysis is the larger of the values calculated by $N > 50 + 8k$ or $N > 104 + k$, where k=number of predictor variables. For this study, the six independent variables are use of social networking sites, anticipation of reciprocal rewards, sense of self-worth, attitude towards sharing knowledge, subjective norm, and organizational climate. Therefore, $N > 50 + 8(6) = 98$, or $N > 104 + 6 = 110$ minimum number of

participants was desirable. Based on the calculations, a minimum of 110 participants would be desirable using this calculation (Warner, 2008).

The sample size used for this study was determined using the following formula developed by Cochran (1963) for large populations:

$$n = (Z^2pq)/e^2$$

where n is the sample size

Z squared is the abscissa of the normal curve that cuts off an area a at the tails, and 1 – a = the desired level of confidence. This study used a 93% level of confidence.

p is the estimated proportion of an attribute that is present in the population

q is 1 – p, and

e is the level of confidence

In this study, where there was a large population and the proportion of the population exhibiting the attribute was unknown a priori, the maximum variability of 0.5 was used for calculating the sample size. So, the formula is

$$n = [1.96^2(0.5)(0.5)]/0.07^2$$

$$n = 196$$

With respect to a questionnaire, validity describes the degree to which the data collection instrument measures what it is intended to measure (Evergreen, Gullickson, Mann, & Welch, 2011). To validate the survey instrument used for this research, three types of validation were

assessed. First, content validity was verified by evaluating the consistency between the measured items and items of interest described in the literature, such as the earlier studies by Bock. Second, convergent validity was validated by examining composite reliability and average variance. A threshold of 0.7 for composite reliability and 0.5 for average variance was the objective for this survey instrument. Finally, discriminant validity of the survey instrument was evaluated by examining the square root of the average variance.

The survey instrument developed for this study first was subjected to an initial pilot study, consisting of approximately 25 participants. The pilot study was an important step in the instrument development process. Results of the pilot study were carefully evaluated to determine if changes to the instrument were indicated (Pittayachawan, 2013). Specifically, responses from the participants in the pilot study were evaluated by the researcher and a panel of experts (the committee providing oversight to the researcher) to determine if the questionnaire was a valid survey instrument appropriate for this research. Understanding and evaluating the participants' responses helped to determine if the questionnaire related to the purpose of the research, and did the answers address the research objectives. Secondly, were the questions comprehensive enough to collect all of the information needed to address the purpose and goals of this study (Radhakrishna, 2007). Changes identified as a result of this preliminary pilot study were incorporated into the questionnaire and a revised survey instrument was used for the data collection phase of this study.

Data Analysis

Partial Least Squares (PLS) regression is a method used to construct predictive models when there are many highly collinear factors (Tobias R., 1995). This technique is particularly useful to

predict a set of dependent variables from a very large set of independent variables, called predictors (Abdi, 2007). PLS is an iterative process (Rosipal & Kramer, 2006), developed by Herman Wold (1966) to model the relationship between different sets of data. It is most useful when there is a need to predict a set of dependent variables from a large set of independent variables. PLS primarily focuses on establishing relationships between these variables. PLS first estimates the weight relationships that link the indicators to their respective unobservable (latent) variables. Next, case values for each unobservable variable are calculated, based on a weighted average of its indicators, using the weighted average of its indicators as inputs. Finally, these case values are used in a set of regression equations to determine the parameters for the structural relationship (Haenlein & Kaplan, 2004). Bollen (1996) developed an alternative to PLS, which is a two-stage least squares (2SLS) estimator for latent variable equations. He suggested the 2SLS analysis technique is more appropriate when observed and latent variables originate from non-normal distributions. Joreskog and Sorbon (1993) used 2SLS procedures to estimate the coefficients of their latent variable model. The 2SLS analysis technique requires the measurement model to be estimated first. However, this study utilized the PLS analysis technique to evaluate the results of the survey. The goal of PLS is to predict the behavior of the dependent variable Y from the characteristics of the independent variable X and determine the relationship between the two sets of variables (Abdi, 2003). PLS uses factors (variables) to predict responses in the population. The PLS technique is appropriate when the independent variables are used to predict the behavior of the dependent variables (Geladi & Kowalski, 1985). Partial Least Squares regression essentially extends multiple linear regression without the restrictions associated with discriminant analysis, principal components regression, and canonical correlation.

Partial Least Squares regression analysis was used to assess the fit of the model and to test the 11 hypotheses to determine if they could be supported based on the results of this study. The mean and standard deviation of the survey results were calculated, and Cronbach's Alpha value was used to evaluate the consistency of the results. This value is useful as an estimate of the reliability of the test results. According to Peterson (1994), Cronbach's coefficient is the most widely used measure of scale reliability. He defined reliability as the degree to which measures are free from error and, therefore, yield consistent results. Santos (1990) also published a paper in which he describes Cronbach's Alpha as a tool for assessing the reliability of scales. Bland and Altman (1997) noted in their statistical notes on Cronbach's Alpha that all items used to form a scale should measure the same thing so that they can be correlated with one another. In his paper, Santos illustrated the use of Cronbach's Alpha to determine the internal consistency, or average correlation, of items in a survey instrument. In general, alpha values less than 0.7 indicate test results of questionable value, alpha values from 0.7 to 0.8 indicate good results, and alpha values above 0.9 indicate excellent test results. Schmidt (1996) reported on his investigations that he found the Cronbach's Alpha coefficient was occasionally misused, that is, it was being used as a measure of uni-dimensionality. He pointed out that Cronbach's Alpha should be used as a measure of reliability. The results of his study were summarized as: (a) Cronbach's Alpha is not appropriate to assess homogeneity; (b) when used in an inappropriate situation, reliability coefficients will be overcorrected; (c) in some situations, even low levels of alpha may still be useful; (d) the alpha coefficient should not be the only factor used, inter-correlation also should be considered. The data was analyzed to determine if the hypotheses developed with the assistance of the model depicted in Figure 1 were supported. For example, in

the study by Bock and Kim (2002), the Cronbach Alpha value related to explicit rewards was 0.71 (acceptable), and for expected contributions was 0.95 (excellent).

The proposed hypotheses were evaluated using the Partial Least Square (PLS) method. The individual was the unit of analysis. The results and shortcomings of earlier case studies evaluated in the literature research were used as a guide in conducting this study. The questionnaire was reviewed and approved by the University Institutional Review Board before it was sent to study participants, including the initial pilot study. An in-depth analysis of the responses to the questionnaire determined the degree to which use of social networking sites influences one's intent, and thus attitude, to share knowledge. An analysis of the survey results showed that a correlation exists between the use of social networking sites and one's intention to share knowledge.

The research model was diagrammed in the introduction of this report and again at the beginning of this section. The results of the data analysis for this study were compared to the results of an earlier study (Bock & Kim, 2005). This comparison was performed to assess any differences that could be attributed to the on-line form of measure versus the paper and pencil version of a measure, as well as the contributions social network sites have on intention to share knowledge.

Resources

A fundamental requirement needed to successfully accomplish the objectives of this dissertation study was a group of participants who use social networking sites and also are currently employed by companies that encourage knowledge sharing. An on-line survey tool was utilized to reach the target audience with the survey questionnaire. This tool greatly

enhanced the efficiency of the research effort by insuring the survey questionnaire was made available to qualified respondents who could provide the information needed for the data analysis. Microsoft Office software, including Word, Excel, Project, and PowerPoint were required. Partial Least Square software was used to conduct the quantitative analysis of the data collected via the survey questionnaire. Finally, approval of the Institutional Review Board was required before the data collecting phase of this research could begin.

Summary

The methodology implemented by the researcher to accomplish this study was addressed above. Figure 2 diagrammed the process flow and the approach was described in detail. The research hypotheses and the survey instrument design were then discussed, including instrument validity and reliability. Finally, the data collection process was described, including calculation of the survey population size.

Chapter 4

Results

Introduction

This chapter describes the quantitative analysis conducted on the data obtained as part of this research. It begins with a detailed discussion of the demographics represented by the survey population participating in this research. A description of the measurement model used in this study, a discussion of path coefficients and the parameters representing the difference between the sample population mean and a hypothesized value is discussed.

The goal of this in-depth data analysis was to determine if the original hypotheses, as described in Chapter 2, were supported by data. This study was a logical follow-on to the study conducted 12 years earlier by Dr. Bock, et al. (2005). Their study contained a sub-set of the hypotheses proposed in the current study. In Dr. Bock's investigation, he found that all but two of his initial hypotheses were supported by his research. The current study determined that all but one of the research hypotheses are supported, albeit some more strongly than others. The fact that most of the hypotheses are supported by the research data can be attributed to the significant influence related to the dramatic increase in the use of social networking sites by the general public. Although this study was confined to users currently employed in the United States, this is not a significant limitation. Dr. Bock's research (2005) was confined to social networking site users in South Korea. The fact that the results of both studies, conducted entirely independently, were almost identical lends credence to the findings of both studies, and furthers our understanding of how attitude and use of social networking sites have a direct influence on our attitude regarding knowledge sharing.

A basic assumption of this study was that the outcome of one hypothesis has a bearing on the behavior of other hypotheses. None of the hypotheses acted independently. This fundamental assumption that each hypothesis was influenced by and in turn exerted an influence on other hypotheses was critical to this study and was also at the core of the research by Dr. Bock and his colleagues 12 years earlier.

This chapter provides a review and discussion of the findings resulting from a careful analysis of the data using Partial Least Squares. This tool is a widely used to evaluate the significance of an independent variable on the behavior of the dependent variable. An advantage of PLS is that it is designed to deal with highly correlated independent variables. Highly correlated variables can be identified as being in the form of a large number of high coefficient variables that can be used to offset each other (Ng, 2013). The research model developed for this study incorporated a number of independent variables that collectively exerted influence on other independent variables and ultimately influenced the behavior of the dependent variable.

The initial step in this quantitative analysis was to evaluate the measurement model for internal consistency. It was then checked for convergent and for discriminant consistency. The predictive relevance and explanatory power was assessed. Based on these quantitative assessments and evaluations using the Partial Least Squares methodology, the supported and unsupported research hypotheses were determined. An in-depth analysis of data collected by means of a survey evaluated the influence of visiting social networking sites on behavior, specifically, attitude toward knowledge sharing. The data to support this research was collected by means of a survey questionnaire distributed via the Internet. Qualifying questions at the beginning of the questionnaire enabled the researcher to determine which survey participants were qualified to provide relevant data pertinent to this study. A preliminary review of the data

collected enabled the researcher to eliminate irrelevant responses. Following this qualification effort, the researcher initiated a detailed analysis of the survey data.

Demographics of Sample Population

Of the more than 600 participants who initially replied to this survey instrument administered by SurveyMonkey, 513 qualified responses were used in the final data analysis. The sample population used for this study closely mirrored the general population in a number of ways. First, of the 513 responders, 283, or 55.2% categorized themselves as employees, and 212, or 41.3%, as serving in some managerial capacity (Table 2). The remaining 18 respondents, or 3.5%, indicated they were working as consultants. This workforce breakdown is typical of the working population in general, where approximately 40% classified themselves as managers (Labor Force Statistics, Table 12, Bureau of Labor Statistics, 2015). This group included project managers and those directly supervising the working staff. The survey questionnaire further subdivided the managerial category into three subgroups: manager, department head, and senior manager. When the responses from all three subgroups are combined, the resulting number of managers closely resembles the ratio of managers to workers in the general workforce population.

Which of the following best describes your job position?		
Answer Options	**Response Percent**	**Response Count**
Employee	55.2%	283
Manager	26.3%	135
Department Head	8.6%	44
Senior Manager	6.4%	33
Consultant	3.5%	18
	answered question	**513**
	skipped question	**0**

Table 2. Job Position

The total number of years of working experience reported by survey participants encompassed the entire spectrum of the general population in the labor force. Survey responses were categorized into six distinct bins as follows, workers with 0-5 years of work experience, 6-10 years, 11-15 years, 16-20 years, 21-25 years, and those with more than 25 years' work experience (Table 3). The category with the most responses represented workers with 6-10 years working experience. They accounted for 22.4% of all responses. This group was closely followed by workers with over 25 years working experience, at 21.2%. This second group reflects the sizeable number of aging workers in the U.S., and is indicative of two things. First, it shows that an aging workforce is staying on the job longer, which may be attributed to improved health care and an increased consciousness toward one's health, leading to a healthier lifestyle, and also possibly for financial reasons, meaning people need more money to be able to afford a longer life. The remaining bins were fairly evenly distributed, with the smallest group representing workers with less than 5 years of work experience, at 10.3%. The fact that this group had the smallest number of respondents may be explained by the fact that this group of less experienced workers felt less confident with this kind of questionnaire than their more experienced counterparts, and therefore, were more reluctant to participant in the survey. Even so, this sample population was representative of the general population of the workforce.

Which of he following best describes your work experience?		
Answer Options	**Response Percent**	**Response Count**
0 - 5 years	10.3%	53
6 - 10 years	22.4%	115
11 - 15 years	17.2%	88
16 - 20 years	16.2%	83
20 - 25 years	12.7%	65
>25 years	21.2%	109
	answered question	**513**
	skipped question	**0**

Table 3. Work Experience

Responses to this survey questionnaire were fairly evenly divided between male workers and female workers in the labor force (Table 4). A total of 258 females, or 50.3% of the total responses, and 255 males, or 49.7%, participated in the survey. This tracks closely with the workforce population as a whole, where the labor force in the United States is comprised of approximately 69,703,000 females, or 46.9%, and approximately 79,131,000 males, or 53.17%, according to data published by the Bureau of Labor Statistics (Labor Force Statistics, Table 12, Bureau of Labor Statistics, 2015), as well as by the World Bank, which also tracks labor statistics by country throughout the world. However, this data must be interpreted cautiously as this fairly even composition of the workforce by gender should not be construed as everything is even. There still are occupations where some of the job categories employ a majority of workers of one gender or the other, thus denying some individuals certain job opportunities.

What is your gender?		
Answer Options	**Response Percent**	**Response Count**
Male	49.7%	255
Female	50.3%	258
	answered question	**513**
	skipped question	**0**

Table 4. Gender

The educational background of the sample population responding to this survey questionnaire includes people with only a high school diploma through doctoral graduates, essentially covering all educational levels reflected by the general workforce in the U.S. (Table 5). The largest category of survey respondents, almost half (229, or 44.6%), held a bachelor's degree. The second largest group of survey participants (115, or 22.4%), represented workers who indicated they had some college but did not graduate. This is reflective of the educational level achieved by the majority of the general workforce in America, where more young people are eligible for and encouraged to attend college, at least a community college. Workers with graduate degrees accounted for 19.4%, while those with only a high school diploma represented 13.5% of the total survey participants, showing that although more people are attending at least some college today than in the past, there are still some jobs available to people who want to work but do not possess a college degree. For example, although the U.S. military still is recruiting high school graduates, it continues to highly encourage its members to take college courses during their off-duty time. These numbers track with data published by U.S. Department of Commerce Bureau of the Census (Educational Attainment in the United States, 2015, U.S. Department of Commerce, March, 2016), where approximately 29.5% indicated they possessed only a high school diploma, 26.4% reported having attended some college level classes, 20.5% held a

Bachelor's degree, and 12% held graduate degrees. The remaining 11.6% of the Census Bureau population represented those who had not completed high school education.

Which of the following best describes your highest level of education?		
Answer Options	**Response Percent**	**Response Count**
High School graduate	13.5%	69
Attended some college but did not graduate	22.4%	115
Bachelor's Degree	44.6%	229
Master's Degree	17.5%	90
PhD	1.9%	10
answered question		**513**
skipped question		**0**

Table 5. Education

The age groups of the sample population responding to this survey (Table 6) were similar to the age groups representing the labor force in the U.S., as reported by the Bureau of Labor Statistics (Labor Force Statistics from the Current Population Survey, Table A-13, November, 2016). The BLS data reported that workers in the 18-25 year age group represented 13% of the labor force, 22.4% were 26-35 years old, 20.7% were 36-45 years old, 21.3% were 46-55 years old, and 16.7% were older than 55. Participants in this survey fell into the following age categories. A total of 37 people (7.2%) were between 18-25 years old, 167 (32.6%) were ages 26-35 years old, 124 (24.2%) were 36-45 years old, 122 (23.8%) were 46-55 years old, and 63 (12.3%), were older than 55 years of age. People 16-17 years of age were not included in this study. Also, workers over 55 were not separated into two separate categories of 55-64 and over 65. Both the younger age group (16-17) and the over 65 years age group most probably represent a relatively small percentage of the overall labor force in America and should not skew the results.

What is your age group?		
Answer Options	**Response Percent**	**Response Count**
18 - 25 years	7.2%	37
26 - 35years	32.6%	167
36 - 45 years	24.2%	124
46 - 55 years	23.8%	122
>55 years	12.3%	63
answered question		**513**
skipped question		**0**

Table 6. Age

Finally, the venue used most often by survey participants to exchange information was face-to-face, or personal, communications, at a significant 53.6% (Table 7). This is typical in a work environment where the majority of time spent on the job is at the work place. The next most often used means of sharing information, at 26.5%, was by email, a growing trend that is being influenced by an increase in teleworking opportunities. Email was followed by the use of social networking sites, where 15.7% of all survey participants indicated this was their most often used venue to share information. Again, this reflects a growing trend and provides an increasing selection of possibilities to exchange information. Slide presentations, at only 3.1%, showed a downward trend in use as an information sharing capability that is being rapidly replaced by email and the use of social networking sites. Finally, knowledge repositories represented the least used meth od to exchange information. With only 1.6% of the survey population indicating this was their primary method of sharing knowledge, this shows that knowledge repositories is a capability that has not really caught on with either employees or employers, and that other methods of sharing information prevail with the majority of the labor force in the general population.

Which of the following do you use most often to share your knowledge?		
Answer Options	**Response Percent**	**Response Count**
Face-to-face communications	53.6%	275
Slide presentations	3.1%	16
Email	26.5%	136
Social networking sites	15.2%	78
Knowledge repositories	1.6%	8
answered question		**513**
skipped question		**0**

Table 7. Knowledge Sharing

Measurement Model Analysis

Internal Consistency of Reflective Constructs

The reflective constructs of the measurement model were evaluated to determine its internal consistency. This was accomplished by evaluating Cronbach's Alpha. As noted by Hair et al., (2010), a Cronbach's Alpha value greater than 0.7 indicates acceptable internal consistency. The Cronbach's Alpha for the measurement model used in this research exceeded the 0.7 acceptance threshold.

Similar to internal consistency, the composite reliability of the measurement model also must be evaluated, with an acceptance level greater than 0.7. The composite reliability of the measurement model met or exceeded this threshold.

Convergent Validity of Reflective Constructs

Convergent validity describes the relationship between the various elements of the reflective construct. Hair et al (2017) noted that the average variance extracted (AVE) of the reflective constructs should be greater than 0.5 in order to support the convergent validity of each reflective construct. The reflective constructs of this measurement model met the 0.5 acceptance threshold.

Finally, the discriminant validity of the measurement model was assessed to determine if the reflective constructs are different from each other and are not closely related. The acceptance threshold for discriminant validity is a value less than 0.85. Results of this analysis showed acceptable values for discriminant validity.

Path Coefficient and T-Value

In this analysis, t indicates evidence of a significant difference between the population mean and a hypothesized value. The t value calculates differences represented in results of standard error. The greater the magnitude of t (+ or -) indicates the greater the evidence against the null hypothesis, that there is a significant difference. The closer the t-value is to 0.0, the more likely there is not a significant difference (Hair et al., 2017).

PATH MODEL COEFFICIENTS		
INNER MODEL PATH	**PATH COEFFICIENT**	**T-Value**
EXTR --> KSA	2.413	-0.086
ARR --> KSA	5.947	0.347
SW --> KSA	2.432	0.167
F --> ORGCLI	6.756	0.515
A --> ORGCLI	5.169	0.390
I --> ORGCLI	3.134	0.190
SW --> SN	10.162	0.519
ORGCLI --> SN	6.977	0.359
SN --> KSA	5.994	0.467
SM_PROV --> KSA	0.482	0.020
SM_SEEK --> KSA	1.995	0.096
SNS_SEEK --> ISK	5.195	0.202
SNS_PROV --> ISK	3.83	0.176
KSA --> ISK	4.621	0.316
SN --> ISK	3.36	0.207
ORGCLI --> ISK	1.588	0.089

Table 8. Path Model Coefficient

In the table above:

EXTR refers to Expectation of Extrinsic Rewards

KSA refers to Knowledge Sharing Attitude

ARR refers to Anticipation of Reciprocal Relationships

SW refers to Sense of Self-Worth

F refers to Fairness

ORGCLI refers to Organizational Climate

A refers to Affiliation

I refers to Innovativeness

SN refers to Subjective Norm

SM_PROV refers to users of Social Media sites as an Information Provider

SM_SEEK refers to users of Social Media sites as an Information Seeker

ISK refers to Intention to Share Knowledge

The larger the absolute value of the t-value, the smaller the path coefficient value, and thus the greater the evidence against the null hypothesis. Bigger t-values (positive or negative) and corresponding smaller path coefficient-values provide evidence against accepting (therefore recjecting) the null hypothesis.

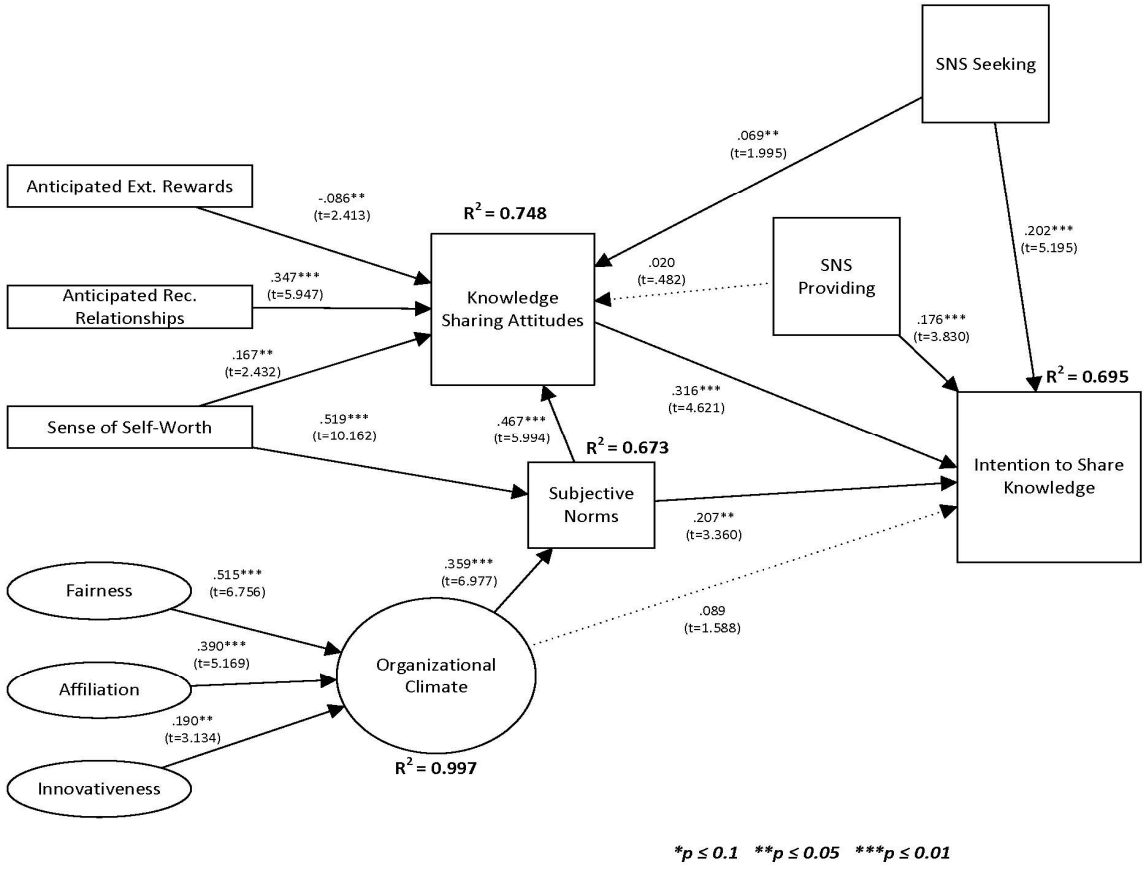

Figure 4. Results

As observed in Table 8 and the results diagram (Figure 4). Anticipated Extrinsic Rewards had a path coefficient of -0.86 and a t-value of 2.413, corresponding to a p-value of less than or equal to 0.05, indicating it has significant influence on Knowledge Sharing Attitudes. The negative sign indicates it has a negative influence on Knowledge Sharing Attitudes.

The independent variable Anticipated Reciprocal Relationships with a path coefficient of 0.347 and a t-value of 5.947, and a p-value of less than or equal to 0.01, shows it exerts a very strong influence on Knowledge Sharing Attitude.

The independent variable Sense of Self-Worth, with a path coefficient of 0.167, a t-value of 2.432, and a p-value of equal to or less than 0.05, indicates it has a significant influence on Attitude toward Knowledge Sharing.

The independent variable Fairness, with a path coefficient of 0.515, a t-value of 6.756 and a p-value of less than or equal to 0.01, exerts a strong influence on Organizational Climate. Affiliation, with a path coefficient of 0.390, a t-value of 5.169, and a p-value of less than or equal to 0.01, also strongly influences Organizational Climate. Innovativeness, with a path coefficient of 0.190, a t-value of 3.134, and a p-value of equal to or less than 0.05, has a significant influence on Organizational Climate.

Subjective Norm describes the perceived social pressure to perform a certain behavior. In this study, it was hypothesized that Subjective Norm was influenced by Sense of Self-Worth and Organizational Climate. Partial Least Squares analysis indicated that Sense of Self-Worth, with a path coefficient of 0.519, a t-value of 10.162, and a p-value of equal to or less than 0.01, strongly influences the Subjective Norm. Organizational Climate, with a path coefficient of 0.359, a t-value of 6.977, and a p-value of less than or equal to 0.01, also strongly influences the Subject Norm.

The independent variable Subjective Norm, with a path coefficient value of 0.467, a t-value of 5.994, and a p-value of less than or equal to 0.01, exerts a very strong influence on Knowledge Sharing Attitude.

Visiting social networking sites (SNS), either as information providers or as information seekers, also influences knowledge sharing attitudes. Survey participants who use social networking sites to seek information had a path coefficient of 0.069, a t-value of 1.995, and a p-value of less than or equal to 0.05, indicating their SNS visits strongly influence their attitude toward knowledge sharing. Participants who visit social networking sites to provide information had a path coefficient of 0.020 and a t-value of 0.482, indicating their SNS visits did not significantly influence their attitude toward knowledge sharing.

Intention to share knowledge influences the subjective norm. With a path coefficient of 0.207, a t-value of 3.360, and a p-value of less than or equal to 0.05, the subjective norm has a significant influence on intention to share knowledge. Knowledge sharing attitude, with a path coefficient of 0.316, a t-value of 4.621, and a p-value of less than or equal to 0.01, also influences intention to share knowledge. Finally, the influence exerted by users of social networking sites was evaluated. Information seekers showed a path coefficient of 0.202, a t-value of 5.195, and a p-value of 0.01, indicating it has a strong influence on intention to share knowledge. Information providers had a path coefficient of 6.1786, a t-value of 3.830, and a p-value of less than or equal to 0.01, also indicating it has a strong influence on intention to share knowledge.

Knowledge sharing attitude, with a path coefficient of 0.316, a t-value of 4.621, and a p-value of less than or equal to 0.01, has a very strong influence on the dependent variable Intention to Share Knowledge. The Subjective Norm, with a path coefficient of 0.207, a t-value of 3.360,

a p-value of less than or equal to 0.05, also influences Intention to Share Knowledge. Organizational Climate, with a path coefficient of 0.089 and a t-value of 1.588, does not significantly influence Intention to Share Knowledge.

Explanatory Power and Predictive Relevance

Reliability testing was used to assess the quality of the structural model and its reliability in predicting the four endogenous constructs in the model. These four endogenous constructs, as illustrated in Table 9, are Knowledge Sharing Attitude, Organizational Climate, Subjective Norm, and Intention to Share Knowledge. In this analysis, R-squared represents the predictive reliability of the research results. For example, an R-squared value of 0.9 means that the hypothesized model accounts for 90% of the variance in the observed activities of the sample population. It measures the strength of the least squares fit to the sample population activities. It is of interest to note that the R-squared value gets closer to 1.0 (100%) as the number of factors (independent variables) increases, but doing this can create a much more complex model.

CONSTRUCT PREDICTIVE RELIABIITY	
CONSTRUCT	**R-squared**
Knowledge Sharing Attitude	0.748
Organizational Climate	0.997
Subective Norm	0.673
Intention to Share Knowledge	0.694

Table 9. Predictive Reliability

Hypothesized Relationships

This section provides the results of the study as they relate to the hypotheses identified in Chapter 1. A review of the results (Table 10) indicates all but one of the hypotheses proposed for this research is supported by the data. More specifically, analysis of the data indicates that expectation of extrinsic rewards results in a negative influence on knowledge sharing attitude. The results shown by H1, the greater the use of social networking sites the higher the expectation of extrinsic rewards, is not supported. The survey data also indicates that the other five independent variables, sense of self-worth, use of social networking sites to seeking information, and, to a lesser extent, use of social networking sites to provide information, anticipation of reciprocal relationships, and subjective norm, all exert a positive influence on knowledge sharing attitude with 74.8 % predictive reliability. This results in hypotheses H2, H3, H4, H5, and H8 supported by the data. Fairness, Affiliation, and Innovativeness have a positive influence on the Organizational Climate with a predictive reliability of 99.7%. Sense of Self-Worth and Organizational Climate exert a positive influence on the Subjective Norm with a predictive reliability of 67.3%. These results support hypotheses H6 and H7. Finally, knowledge sharing attitude, use of social networking sites as information providers and as information seekers, subjective norm, and to a lesser extent organizational climate, all exert a positive influence on intention to share knowledge with 69.4 % predictive reliability. This data results in hypotheses H9, H10, and H11 are supported.

RESULTS	
HYPOTHESIS	**RESULTS**
H1	Unsupported
H2	Supported
H3	Supported
H4	Supported
H5	Supported
H6	Supported
H7	Supported
H8	Supported
H9	Supported
H10	Supported
H11	Supported

Table 10. Hypotheses Results

Summary

This chapter presents the results of an in-depth research and analysis of the use of social networking sites and how these behaviors influence a person's attitude toward knowledge sharing and, consequently, his intention to share knowledge. The results of an Internet-administered survey questionnaire were analyzed using Partial Least Squares. The results of the final analysis indicate that all but one of the original hypotheses are supported by the author's data. These results track very closely with a prior study by Bock and his colleagues in 2005, providing confidence in the reliability of this study.

CHAPTER 5

Conclusions, Implications, Recommendations and Summary

Introduction

Effective knowledge sharing cannot be forced or mandated (Bock et al., 2005). The purpose of this research was to conduct an in-depth study into how social networking site behavior affects attitude toward knowledge sharing and, specifically, what factors influence intention to share knowledge. This study first validated the results of an earlier study, and then extended the results of the earlier study by expanding the sample population to include a more diverse representation of the general population and by looking at additional factors that contribute to knowledge sharing attitude. This expansion of the earlier study (Bock et al., 2005) to include a larger, more varied audience in a different geographic region was suggested as a recommendation in their research report.

The current study examined how certain behaviors and attitudes influence intention to share knowledge. Results of the research are summarized in the discussion that follows, and lists the research hypotheses that were supported by the research data. It also identifies the research hypothesis that was not supported by the data. Implications that can be drawn from the results of this study as well as the limitations to this research are identified. The chapter concludes by presenting recommendations for follow-on research in this area and an overall summary of the research successfully accomplished.

Conclusions

The earlier study (Bock et al., 2005) found that expectation of extrinsic rewards does not exert a positive influence on knowledge sharing attitude. This finding was validated in the current study and shows that hypothesis 1, expectation of extrinsic rewards leads to a higher use of social networking sites, cannot be supported by the data. The data indicates that attitude toward sharing knowledge by social networking site users is more influenced by other variables than promises of extrinsic rewards. This finding correlates with the findings of Bock and his research team in 2005. This research does show that increased use of social networking sites does lead to a greater feeling of self-worth and an anticipation of reciprocal relationships, supporting hypotheses 2 and 3.

Results further showed that anticipation of reciprocal relationships, a better feeling of self-worth, and increased use of social networking sites combine to exert a positive influence on an individual's attitude toward knowledge sharing, supporting hypotheses 3, 4, 5, and 8. Organizational climate is how an employee perceives individual fairness, personal affiliation and encouragement for innovativeness. Taken together, these three organizational attributes combine to establish the subjective norm and exert a positive influence on intention to share knowledge. Data from this research demonstrates these conclusions and supports hypothesis 7, that an organizational climate perceived to encourage social networking site use affects the subject norm. Data also supports hypothesis 11, that an organizational climate that encourages social networking site use positively influences intention to share knowledge

Data from this study demonstrated that subjective norm, knowledge sharing attitude, and social networking site behavior combine to influence intention to share knowledge. This

conclusion, derived from an analysis of the research data, provides support for hypotheses 9, 10, and 11. These conclusions significantly increase our understanding of the motivating factors that exert a positive influence on intention to share knowledge.

This study extended the focus of the earlier study (Bock et al., 2005), by researching a different region, greatly expanding the number of respondents from 154 to 513, including significantly more age groups and occupational categories, educational backgrounds and work experience to the sample population. This expanded sample population more closely resembled the general population, and provided greater confidence to generalize the findings of this research. This study also looked at additional factors influencing knowledge sharing intention, such as employee perception of fairness, affiliation, and acceptance of personal innovation in the working environment. It also significantly added to our understanding of these influences by distinguishing between the behavior of visitors to social networking sites to provide information or to seek information, and how these different behaviors influence intention to share knowledge differently.

Implications

Conclusions drawn from this research show that, although widely dispersed around the world, populations in the U. S. as well as those in the earlier study conducted in South Korea integrate social networking into daily behavior in similar ways. Technical innovators should take note of this finding and acknowledge that the benefits as well as the responsibilities for using new products and services impact a global community, not just the countries into which they are initially introduced.

A second and equally important conclusion is that there is a growing trend to embrace social networking sites as the new venue for communicating with others in virtually any distant location and at any time to share information. These two findings have a global significance.

Research always involves limitations and challenges that must be acknowledged. A sample population representative of the larger target audience that will provide meaningful results for this research had to be identified. A well-respected and experienced organization specializing in conducting research surveys was utilized. A large number of responses was received, and after filtering them for appropriateness to the survey, a satisfactory number of qualified responses (513) was subjected to detailed quantitative analysis. Additionally, there was the possibility the survey questionnaire was not worded correctly, causing the survey responses to be incorrectly skewed in one direction. A pilot study was conducted to eliminate this potential limitation to the study. Also, inherent in any research is the uncertainty as to the outcome and whether the study was conducted correctly. Comparing the results of this study with those of the earlier study (Bock et al., 2005) provided confidence in the accuracy of this research.

It is widely accepted that adaptability is the key to survival. Innovativeness facilitates adaptability. For an organization to survive today's challenging and changing global environment, it must continuously adapt to meet these new challenges. Knowledge sharing is necessary to succeed in these changing times. This study researched how the use of social networking sites promotes knowledge sharing, and what factors influence attitude and intention to share knowledge.

The significant implication that can be drawn from the results of this research is a much better understanding of what specific factors motivate a person to share knowledge. By identifying

these factors, and then linking them to social networking site use gives us a much better understanding of how social networking sites are changing our attitude toward knowledge sharing and how this sharing is being accomplished.

Recommendations

This research extended the original study (Bock et al., 2005). The data resulted in an increased understanding of what specific factors influence our intention to share knowledge and how. This study focused on social networking site users currently employed in the U.S. Affordable wireless devices and Internet access are rapidly becoming available in most countries. Follow-on research could look at how social networking sites are used in less technically developed countries, and compare behavioral influences on attitude toward knowledge sharing between the two countries.

Further research could continue to examine the interaction effects of the independent variables identified for this study. As the use of social networking sites continues to increase globally, additional influencing factors may be identified that affect behavior and, in turn, knowledge sharing attitude. Of interest would be how further advances in technology influence behavior, organizational climate, subjective norm, and wider use of social networking sites.

This study did not focus on any specific social networking site venue. Another study could look at Facebook, Twitter, or any of the other social networking sites frequented by mobile device users to determine if any specific site exerts stronger influence on intention to share knowledge.

Another follow-on study could validate the research model developed and evaluated here to determine its relevance to the increased use of social networking sites. There is a need to

continue to refine this model to further increase our understanding of how social networking site behavior influences our intention to share knowledge.

Summary

The significance of this research is that it validated as well as extended the results of an earlier study and also increased our knowledge and understanding of the factors, including use of social networking sites that influence intention to share knowledge. Although this study initially validated the results of an earlier study conducted 12 years earlier, it went on to expand the scope of the initial study, resulting in a significant increase in our understanding of what these motivating factors are and how the use of social networking sites influence knowledge sharing attitudes and intention.

The research was conducted by means of an Internet-administered survey. A validated questionnaire (Appendix A) was provided to 513 respondents. The survey instrument began with 10 questions, the purpose of which was to identify only those participants whose responses would be evaluated as part of this study. Following the preliminary questions, the survey instrument then requested participants to respond to a series of 46 questions divided into five specific categories. These categories, including areas focusing on the individual's knowledge sharing attitudes and beliefs as well as the reasons for visiting social networking sites, provided the data to be analyzed. The survey instrument concluded with a number of questions and the answers helped to establish the demographics of the sample population. A comparison of these demographics with those of the general population as researched and published by the U. S. Department of Commerce Bureau of the Census and the Bureau of Labor Statistics shows the sample population evaluated in this study closely resembles the general population. Data from

responses to the questionnaire were evaluated using Partial Least Squares analysis. The results lead to the determination of which research hypotheses were supported by this research.

The results are important because this study addressed a significantly larger sample audience including a broader range of ages and a wider range of employment experiences than the earlier study, providing a more accurate and complete representation of the target population. These results greatly enhance and provide a clearer understanding of the relationship between the use of social networking sites and intention to share knowledge.

Social networking has redefined the collaborative environment to facilitate knowledge sharing. Knowledge holders share their knowledge for a number of reasons, identified in this study. The results of this research show how organizational climate, subjective norm, knowledge sharing attitudes, and personal behavior in the use of social networking sites influence our intention to share knowledge with others. In so doing, these results and conclusions add to the body of knowledge and increase our understanding of the specific organizational and behavioral factors that influence our intention to share knowledge.

Appendix A

Questionnaire

PRELIMINARY QUESTIONS

1. How frequently do you use social networking sites to share information?

    Very Frequently

    Frequently

    Moderately

    Infrequently

    Very Rarely

2. How frequently do you use social networking sites to share pictures you have taken?

    Very Frequently

    Frequently

    Moderately

    Infrequently

    Very Rarely

3. How frequently do you use social networking sites to comment on information previously posted by someone else?

    Very Frequently

    Frequently

    Moderately

    Infrequently

    Very Rarely

4. How frequently do you use social networking sites to comment on pictures previously posted by someone else?

    Very Frequently

    Frequently

Moderately

Infrequently

Very Rarely

5. How frequently do you use social networking sites to share pictures others have taken?

Very Frequently

Frequently

Moderately

Infrequently

Very Rarely

6. How frequently do you use social networking sites to repost information others have posted in response to someone's question?

Very Frequently

Frequently

Moderately

Infrequently

Very Rarely

7. How frequently do you use social networking sites to repost questions others have posted?

Very Frequently

Frequently

Moderately

Infrequently

Very Rarely

8. How frequently do you use social networking sites to see what information others have posted?

Very Frequently

Frequently

Moderately

Infrequently

Very Rarely

9. How frequently do you use social networking sites to see what pictures others have posted?

Very Frequently

Frequently

Moderately

Infrequently

Very Rarely

10. How frequently do you use social networking sites to search for information or current events?

Very Frequently

Frequently

Moderately

Infrequently

Very Rarely

PART 1: KNOWLEDGE SHARING BEHAVIOR

The following questions are about knowledge sharing behavior. Here, "*knowledge*" means "*The individual's know-how or something which is helpful to solve problems in the organization*." "*Knowledge sharing*" means "*providing or transferring one's my knowledge to others*." Knowledge sharing is possible through various methods such as formal and/or informal meetings and information systems.

1. How frequently do you share the following knowledge with your organizational members? Please tick in the most appropriate box for each question.

	Very Rarely	Rarely	Moderately	Frequently	Very Frequently
1) Reports, Official documents	( )	( )	( )	( )	( )
2) Manuals, Methodologies, Models	( )	( )	( )	( )	( )

3) Know-Where, Know-Whom	( )	( )	( )	( )	( )
4) Experience, Know-How	( )	( )	( )	( )	( )
5) Expertise from Education & Training	( )	( )	( )	( )	( )

2. How frequently do you use the following information technology to share your knowledge? Please tick in the most appropriate box for each question.

	Very Rarely	Rarely	Moderately	Frequently	Very Frequently
1) Bulletin Board System	( )	( )	( )	( )	( )
2) E-Mail	( )	( )	( )	( )	( )
3) Webpage	( )	( )	( )	( )	( )
4) Chat-room	( )	( )	( )	( )	( )
5) Electronic Document Management System	( )	( )	( )	( )	( )
6) Knowledge Repository	( )	( )	( )	( )	( )

PART 2: INTENTION TO SHARE KNOWLEDGE

The following questions are about your <u>general intention to share your knowledge</u> with other members in the organization. Please tick in the most appropriate box for each question.

1. I will share my knowledge with more organizational members.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. I will always provide my knowledge at the request of other organizational members.

Unlikely	( )	( )	( )	( )	( )	Likely

	Extremely	Fairly	Neither	Fairly	Extremely	

3. I intend to share my knowledge with other organizational members more frequently in the future.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

4. I try to share my knowledge with other organizational members in an effective way.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

5. I will share my knowledge to anyone in the organization if it is helpful to the organization.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

PART 3: THE INDIVIDUAL'S BELIEFS

Please answer the following questions after you consider your situations in the past, in the present and in the future.

1. Expected Rewards

The following questions are about <u>your belief in the possibility of receiving rewards in return for your knowledge sharing</u>. Please tick in the most appropriate box for each question.

1. I will receive monetary rewards in return for my knowledge sharing.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. I will receive additional points for promotion in return for my knowledge sharing.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

3. I will receive an honor or educational opportunity in return for my knowledge sharing.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. Expected Associations

The following questions are about <u>your belief in the possibility of changes in relationship between you and other organizational members after sharing your knowledge</u>. Please tick in the most appropriate box for each question.

1. My knowledge sharing would strengthen the tie between existing members and myself in the organization.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. My knowledge sharing would get me well-acquainted with new members in the organization.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

3. My knowledge sharing would expand the scope of my associations with other members in the organization.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

4. My knowledge sharing would draw smooth cooperation from outstanding members in the future.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

5. My knowledge sharing would create strong relationships with members who have common interests in the organization.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

3. Expected Contribution

The following questions are about <u>your belief in the possibility of your organization's improvement in its performance after sharing your knowledge</u>. Please tick in the most appropriate box for each question.

My knowledge sharing would help other members in the organization to solve problems.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. My knowledge sharing would create new business opportunities for the organization.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

3. My knowledge sharing would improve work processes in the organization.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

4. My knowledge sharing would increase the productivity in the organization.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

5. My knowledge sharing would help the organization to achieve its performance objectives.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

4. Normative beliefs on Knowledge Sharing

The following questions are about <u>your belief in how people who are important to you think about your knowledge sharing behavior</u>. Please tick in the most appropriate box for each question.

1. My CEO thinks that I should share my knowledge with other members in the organization.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. My boss thinks that I should share my knowledge with other members in the organization.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

3. My colleagues think I should share my knowledge with other members in the organization.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

PART 4: ATTITUDE TOWARD KNOWLEDGE SHARING

The following questions are about your general attitude toward your knowledge sharing with other members in the organization. Please tick in the most appropriate box for each question.

1. My knowledge sharing with other organizational members is good.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. My knowledge sharing with other organizational members is harmful.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

3. My knowledge sharing with other organizational members is an enjoyable experience.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

4. My knowledge sharing with other organizational members is valuable to me.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

5. My knowledge sharing with other organizational members is a wise move.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

PART 5: ORGANIZATIONAL CLIMATE

1. Autonomy

The following questions are about <u>autonomy in your department</u>. Please tick in the most appropriate box for each question.

1. Each member can decide his own way of working to accomplish his tasks.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. Each member can make major decisions on his tasks.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

3. Each member can establish the targets for the tasks by himself.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

4. Each member can establish the plan for the tasks by himself.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. Affiliation

The following questions are about <u>affiliation in your department</u>. Please tick in the most appropriate box for each question.

1. Members in my department keep close tie to each other.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. Members in my department consider other members' standpoint a lot.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

3. Members in my department have strong feeling of 'one team.'

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

4. Members in my department cooperate well with each other.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

3. Innovativeness

The following questions are about innovativeness in your department. Please tick in the most appropriate box for each question.

1. My department encourages suggesting ideas for new opportunities.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. My department puts much value on taking risks even though it turns out to be a failure.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

3. My department puts the first priority to share and learn the best practices of others.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

4. My department encourages finding new methods to perform the task which is different from the existing one.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

4. Fairness

The following questions are about fairness in your department. Please tick in the most appropriate box for each question.

1. I can trust my boss's evaluation to be good.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. Objectives which are given to me are reasonable.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

3. My boss doesn't show favoritism to a specific person.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

5. Motivation to comply

The following questions are about the level of your compliance to people who are important to you. Please tick in the most appropriate box for each question.

1. Generally speaking, I try to follow the CEO's policy and intention.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

2. Generally speaking, I accept and perform my boss's decision even though it is different from that of mine.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

3. Generally speaking, I respect and put in practice my colleague's decision.

Unlikely	( )	( )	( )	( )	( )	Likely
	Extremely	Fairly	Neither	Fairly	Extremely	

PART 6: GENERAL QUESTIONS

1. Designation (Please tick in the most appropriate box)

(1) Employee ( ) (2) Deputy Manager ( )

(3) Manager ( ) (4) Deputy Head of Department ( )

(5) Head of Department ( ) (6) Managing Director ( )

(7) Senior Managing Director ( )

(8) Vice president ( ) (9) President ( )

(10) Other _____ (Please specify.)

2. Work experience ( ) years ( ) months

3. Gender (1) Male ( ) (2) Female ( )

4. Age ( ) years old

5. Education (Please tick in the most appropriate box)

(1) High school or below ( ) (2) College (2years) ( )

(3) University ( ) (4) Graduate school or above ( ) (5) Other _____ (Please specify.)

I appreciate your participation in this survey

Thank you very much.

1. **Name of the company: _____**
2. **Revenue in 2001: _____** (mil. Dollars)
3. **Total number of employees: _____**
4. **Please write the name, the number of employees, the level of the stratification and the questionn aire numbers of the department to which questionnaires are distributed.**

Name of departments	# of employees	Stratification*	Questionnaire No.
①			____ ~ ____
②			____ ~ ____
③			____ ~ ____

*An example of the level of stratification: If decision is made through employee – manager – director, then level is 3.

Questions	Yes	No	If yes, how long?
5. Has/has been your company done/doing some activities related to knowledge ma nagement?	( )	( )	( )year ( )months
6. Is your company using/running at least one of the following technologies? (BBS , email, Internet, Intranet/groupware, chat room, virtual/cyber community, website, k nowledge management system, knowledge repository, document management system)	( )	( )	( )year ( )months (since the introduction of the first technology)

7. **Is your company giving rewards in return for knowledge sharing?** 1) Yes ( ) 2) No ( )

7.1. **If yes, what kind of rewards is it?** (tick all of them whichever appropriate)

1) Monetary rewards ( ) 2) Points related to promotion ( )

3) Some types of Honors (Ex: Championship, Education/training opportunity) ( )

4) Other : _____ (Please specify)

7.2. What are the criteria? (tick all of them whichever appropriate)
1) # of postings to IS ( ) 2) # of reviewings ( ) 3) Direct impact on performance ( )

4) Evaluation through committee ( ) 5) Other _____ (Please specify)

8. **Does your company have active informal organization such as informal social groupings (like s ports groups or a bridge club)?** 1) Yes ( ) 2) No ( )
9. **Does your company's system allow for an employee to judge the usefulness of his knowledge sh aring by letting him know the number of inquiries for example?**
1) Yes ( ) 2) No ( )

Appendix B

Request for Permission to Use Research Questions

James Gorham

Tue 1/14/2014 2:15 PM

Sent Items; Inbox

To:

Gee-Woo Bock <gwbock@gmail.com>;

Cc:

James Gorham;

Dr. Bock.,

Thank you very much for the information you provided and for your kind words of encouragement.

I am sure they will benefit me in my dissertation efforts.

Respectfully,

Jim Gorham

Gee-Woo Bock <gwbock@gmail.com>

Fri 1/10/2014 11:14 AM

Inbox

Here you go...

All the best to your thesis,

Gilbert

On Thu, Jan 9, 2014 at 2:44 AM, James Gorham <gorham@nova.edu> wrote:

Dr. Bock,

My name is James Gorham and I am a Ph.D. student in the Graduate School of Computer and Information Sciences, Nova Southeastern University, Ft. Lauderdale, Florida. I am currently working on my dissertation research which will investigate the effect of the use of social networking sites on attitude towards sharing knowledge in the workplace. I would like to ask your permission to incorporate parts of the survey instrument used in your earlier studies (Bock & Kim, 2002, and Bock, Zmud, Kim, and Lee, 2005) in my research. If you could provide to me the questions you used in your studies to evaluate your research hypotheses, it will greatly help with my dissertation.

Thank you in advance for your assistance and support to my dissertation efforts.

Respectfully,

James H. Gorham

Gee-Woo (Gilbert) BOCK Ph.D. (MIS)

Professor

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Appendix C

Informed Consent

Study Title: An Investigation into the Impact of Social Networking on Knowledge Sharing

Researcher: James H. Gorham

Contact Telephone Number: 301-602-9566

Contact Email Address: gorham@nova.edu

Research Supervisor: James L. Parrish, Ph.D.

You are invited to be part of a research study.

The researcher is a doctoral student at Nova Southeastern University in the School of Computer and Information Sciences. The information in this form is provided to help you decide if you want to participate. The form describes what you will have to do during the study and the risks and benefits of the study.

If you have any questions about or do not understand something in this form, you should ask the researcher. Do not participate in the study unless the researcher has answered your questions and you decide that you want to be part of this study.

WHAT IS THIS STUDY ABOUT?

The researcher wants to find out about the behavior of people who use social networking sites. Specifically, the researcher wants to identify the individual characteristics that influence people to change their attitude towards using these sites to share knowledge at their place of employment.

WHY AM I BEING ASKED TO BE IN THE STUDY?

You are invited to be in the study because you are an employee at least 18 years old and have some experience using social networking sites.

DO I HAVE TO BE IN THIS STUDY AND HOW LONG WILL THE STUDY LAST?

Your participation in this study is completely voluntary. You can decide not to be in the study and you can change your mind about being in the study at any time. There will be no penalty to you. You can discontinue your participation of you feel extreme discomfort at any time. If you decide to be in this study, your participation will last about 20-25 minutes.

WHO IS PAYING FOR THIS STUDY AND WILL IT COST ANYTHING TO PARTICIPATE?

The researcher is not being paid or receiving any funds to conduct this study. You do not have to pay to be in the study, nor will you receive anything for being in the study.

WHAT WILL HAPPEN DURING THIS STUDY?

If you decide to be in this study, you will do the following things:

• Give information about yourself, such as your age, gender, and occupation.

• Complete a survey about your current job characteristics, your use of social networking sites, your experience with knowledge sharing at your workplace, and your employer's attitude towards knowledge sharing as well as visiting social networking sites, and how these attitudes may influence your motivation to use social networking sites to share knowledge at your workplace.

• Follow the instructions you are given.

• Discontinue your participation if you feel extreme discomfort at any time.

WILL BEING IN THIS STUDY HELP ME AND ARE THERE RISKS TO ME IF I AM IN THIS STUDY?

Being in this study will not help you directly. However, information from this study might help other researchers in the future. No study is completely risk-free. I do not anticipate that you will be harmed or distressed during this study. You may stop being in the study at any time if you become uncomfortable. You should be aware, however, that there is a small possibility that responses could be viewed by unauthorized parties (e.g. computer hackers because your responses are being entered and stored on a web server).

1. DO YOU WANT TO BE IN THIS STUDY? By clicking the box below you agree to the following statements: I am or have been employed, I am at least 18 years old, and I have visited social networking sites. I voluntarily agree to be in this study. I have read this form. If needed, I was able to ask questions about this study and the researcher answered all my questions. I agree to allow the use and sharing of my study-related records for research purposes as described above. I will print a copy of this consent information for my records.

DO YOU WANT TO BE IN THIS STUDY? By clicking the box below you agree to the following statements: I am or have been employed, I am at least 18 years old, and I have visited social networking sites. I voluntarily agree to be in this study. I have read this form. If needed, I was able to ask questions about this study and the researcher answered all my questions. I agree to allow the use and sharing of my study-related records for research purposes as described above. I will print a copy of this consent information for my records.

I do want to be in this study.

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