

**KNOWLEDGE SHARING MECHANISMS: CHARACTERISTICS
AND ROLES IN KNOWLEDGE SHARING**

LIU WENTING

**A THESIS SUBMITTED
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
DEPARTMENT OF INDUSTRIAL AND SYSTEMS
ENGINEERING
NATIONAL UNIVERSITY OF SINGAPORE**

2013

Declaration

I hereby declare that this thesis is my original work and it has been written by me in its entirety.

I have duly acknowledged all the sources of information which have been used in the thesis.

This thesis has also not been submitted for any degree in any university previously.



Wenting Liu

Liu Wenting

01 May 2014

Acknowledgement

The completion of this thesis marks a milestone in my life. Many people help me realized this achievement and I cannot express my appreciation enough in this short acknowledgement. Foremost, I would like to express my sincere gratitude to my advisor A/P Chai Kah-Hin for the continuous support. I was always inspired by his motivation, patience and enthusiasm. His guidance and immense knowledge is the strongest support in all the time of research and preparation of the thesis. I feel being blessed to have Dr. Chai as my supervisor in all of the years study.

Special thanks to my committee, A/P Poh Kim-Leng, A/P Tan Kay Chuan and the examiner(s) for their support, guidance and helpful suggestions for my research proposal and thesis. I was also indebted to Dr. Annapoornima M. Subramanian, for her time, interest, and helpful comments. I also want to thank Jason Zhou for his generous help in the collection of survey data in China.

I would like to thank my family for all their love and continuous encouragement. For my parents who supported me in all my pursuits, and encouraged me to overcome any difficulties I encountered. For the presence of my boyfriend Cheng Yu-Chao here at NUS who never failed to cheer me up for all of these years. My time at NUS was made enjoyable due to the many friends and groups that became a part of my life. I am grateful for time spent with roommates and friends, Zhang Si, Yan Yuanjun, Jin Dayu, Liu Hongmei, Lan Yuhong, Ding Yi, and for many other people and memories.

Table of Contents

Declaration	iii
Acknowledgement	iv
Table of Contents	v
Summary	viii
List of Tables	xi
List of Figures	xii
List of Acronyms	xiii
Chapter 1 Introduction	1
1.1. Background	1
1.2. Objectives of the Thesis	3
1.3. Developments and Outline of the Thesis	5
Chapter 2 Knowledge Sharing Mechanisms: Effects of Mechanism Characteristics, Social Influences and Behavior Controls	10
2.1. Introduction	10
2.2. Literature Review	12
2.2.1. Knowledge Sharing	12
2.2.2. Knowledge Sharing Mechanisms	12
2.2.3. Reach and Richness of Knowledge Sharing Mechanisms	14
2.2.4. Knowledge Sharing Process	14
2.2.5. Theory of Planned Behavior	16
2.2.6. Technology Acceptance Model	17
2.2.7. Integrate the TAM with the TPB	17
2.3. Research Hypotheses	19
2.3.1. Perceived Reach and Richness	19
2.3.2. Perceived Ease of Use	21
2.3.3. Subjective norms	22
2.3.4. Perceived behavior control	22
2.3.5. Reach and Subjective Norm	23
2.3.6. Richness and Subjective Norm	23
2.3.7. Reach and Perceived Behavior Control	24
2.3.8. Richness and Perceived Behavior Control	25
2.4. Research Methodology	26
2.5. Data Analysis	28
2.5.1. Assessment of Reflective Construct Reliability and Validity	31
2.5.2. Assessment of Formative Construct Reliability and Validity	32
2.5.3. Structural Models	33
2.5.4. Unsupported Hypotheses	38
2.6. Discussion and Conclusion	40
Chapter 3 A Cognitive-affective Approach: Towards a Balanced View of Knowledge Sharing Needs on Social Media	43
3.1. Introduction	43
3.2. Social Media Landscape	45
3.3. Social Media Characteristics	46
3.4. Factors Affecting Online Knowledge Contribution	51
3.4.1. Lens of Social Capital Theory	52
3.4.2. Lens of Social Cognitive Theory	53
3.5. Factors Affecting Online Knowledge Seeking	55
3.5.1. Social Capital Theory	55
3.5.2. Social Cognitive Theory	56
3.6. To Fill in the Gap and Remedy the Conflicts: A Balanced Cognitive-Affective Framework	57

Chapter 4 Why Will I Share? Examining Knowledge Contribution on Social Media	61
4.1. Introduction.....	61
4.2. Interaction Model from Socio-Technical Perspective	63
4.3. Research Hypotheses	65
4.3.1. Cognitive Needs on Social Media	65
4.3.1.1 Transparency and Reputation Attainment	65
4.3.1.2 Transparency and Reciprocity Expectation	66
4.3.1.3 Transparency and Community Identity	67
4.3.1.4 Transparency and Self-worth.....	68
4.3.1.5 Transparency and Effort Concern.....	69
4.3.1.6 Transparency and Privacy Concern	71
4.3.2. Affective Needs on Social Media.....	72
4.3.2.1. Transparency and Trust	72
4.3.2.2. Interactivity and Trust.....	73
4.3.2.3. Interactivity and Altruism.....	73
4.3.2.4. Interactivity and Safety Concern	74
4.3.2.5. Interactivity and Enjoyment	74
4.4. Research Methodology	76
4.4.1. Sampling and Data Collection.....	77
4.4.2. Measures.....	79
4.5. Results Analysis.....	80
4.5.1. Assessment of Construct Reliability and Validity.....	81
4.5.2. Marker Variable Method	82
4.5.3. Structural Models	83
4.6. Discussion and Implications	88
4.6.1. Research Implications	88
4.6.2. Managerial Implications.....	90
4.6.3. Conclusions	94
Chapter 5 Why Should I Seek? Examining Knowledge Seeking on Social Media	96
5.1. Introduction.....	96
5.2. Literature Review	98
5.3. Research Hypotheses	99
5.3.1. Cognitive Needs on Social Media	99
5.3.1.1. <i>Content Integration and Information Resource</i>	99
5.3.1.2. <i>Networking Facility and Contact Resource</i>	100
5.3.1.3. <i>Transparency and Effort Concern</i>	101
5.3.1.4. <i>Networking Facility and Self-Knowledge Growth</i>	102
5.3.2. Affective Needs on Social Media.....	103
5.3.2.1. <i>Networking Facility, Transparency and Trust</i>	103
5.3.2.2. <i>Transparency and Receptive Mood</i>	105
5.3.2.3. <i>Transparency and Safety Concern</i>	106
5.4. Research Methodology and Results Analysis.....	107
5.4.1. Measurement and Data Collection	107
5.4.2. Analysis Methods	108
5.4.3. Measurement Model.....	108
5.4.4. Structural Model.....	109
5.5. Discussion and Implications	113
5.6. Conclusion	115
Chapter 6 Conclusions and Contributions	117

6.1. Overview.....	117
6.2. Research Findings.....	117
6.3. Contributions and Implications.....	119
6.3.1. Theoretical Contributions	120
6.3.2. Practical Implications	124
6.4. Limitations.....	126
6.5. Directions for Future Research	127
Reference	131
Appendices.....	151
Appendix A Measurement Development of Study 1.....	151
Appendix B Questionnaire of Study 1.....	154
Appendix C Descriptive Analysis of Study 1	166
Appendix D Measurement Development of Study 2 and Study 3	168
Appendix E Online Survey of Study 2 and 3 on Knowledge Sharing Behavior on Social Media.....	173

Summary

Many organizations expend huge efforts to promote knowledge sharing but do not reap the expected benefits (Brown, 1989). Despite a plethora of technical solutions, many organizations still feel the pain of seeing work replicated in different geographies and business units because people are just not aware of what others have done. The lack of sufficient adoption of knowledge sharing mechanisms within the organization and the mismatch of knowledge management tools and knowledge sharing needs are the major problems in knowledge management. Therefore, thorough and in-depth research on the characteristics and roles that knowledge sharing mechanisms play in fostering knowledge sharing is required to solve the puzzle. This research aims to offer new insights towards the use of knowledge sharing mechanisms, the adoption of knowledge sharing mechanisms in organizations and the use of the new advent of social media. Three studies are presented in this thesis which aims to address two research objectives.

The first research objective is to establish a thorough understanding of when to choose certain mechanisms according to the knowledge sharing process. To achieve this, Chapter 2 reports a study proposing a framework that connects technical characteristics of knowledge sharing mechanisms with the knowledge sharing stages to improve intra-firm knowledge sharing performance. Building on previous research, two dimensions of technical “Reach” and “Richness” are used to characterize the capabilities of knowledge sharing mechanisms. Two stages of the knowledge sharing process, namely the awareness stage and the transfer stage, are studied in the matching of characteristics and knowledge sharing processes. Survey results confirm the hypotheses that mechanisms with a high degree of Reach are more likely to be used at the awareness stage, while mechanisms with a high degree of Richness are more likely to be used at the transfer stage. In addition, the contingencies of the effects that technical characteristics impose on knowledge sharing selection are investigated. Taking an integrative perspective of the technology acceptance model and the theory of planned behavior, Chapter 2 examines the moderating effects of subjective norm and perceived behavior control on the causal relationships between mechanism characteristics and knowledge

sharing mechanism selection. That is, we argue that the effects of the Reach and Richness of knowledge sharing mechanisms may be affected by social and facilitating conditions. Survey results partially confirm the hypotheses that the effects of Reach and Richness are intensified with social supports encouraging the use of the mechanisms. The results imply that technical characteristics alone may not be sufficient if there is no support from peers or management in the organization.

The second research objective is to explore the effects of social media characteristics on knowledge contributions and seeking willingness. The studies related to this objective are reported in Chapter 3 (Literature Review), Chapter 4 (Knowledge Contribution) and Chapter 5 (Knowledge Seeking). Specifically, Chapter 3 presents the literature related to knowledge sharing needs and social media characteristics from a knowledge contribution and knowledge seeking perspective. Chapter 4 presents a study that proposes hypotheses and reports survey results where social media characteristics affect knowledge contribution willingness. Data from 204 employees of five financial service firms in China partially confirms the interaction effects between social media characteristics (i.e., transparency and interactivity) and knowledge contribution needs. Chapter 5 presents the hypotheses in regard to knowledge seeking using social media with empirical evidence from a large scale survey. The survey results show that cognitive and affective needs are significant antecedents to the willingness to seek knowledge via social media. Most of the interaction effects of social media characteristics (i.e., transparency, networking facility and content integration) on cognitive as well as affective needs are supported.

Taken together, our three studies (Chapter 2, Chapter 3, Chapter 4 and Chapter 5) make three contributions to the literature. The first study (i.e., Chapter 2) provides empirical evidence and suggestions on what and when knowledge sharing mechanisms should be used. To our knowledge, no such study has been conducted before. Our second contribution, which is made by Chapter 3, is the first to adopt a cognitive-affective approach and examine knowledge contribution needs, as well as knowledge seeking needs, from a holistic view. Our third contribution, which is collectively made by the second and third studies (i.e., Chapter 4 and Chapter 5), is developing measures of

social media characteristics that are specific to the examination of the use of knowledge sharing mechanisms, and address how to fill knowledge sharing needs for better knowledge sharing willingness through social media characteristics. To our knowledge, this research is a pioneer in its investigation of social media capabilities from a systematic view and the first to explicate the value of social media on knowledge sharing. This research also provides suggestions on the design of social media to encourage knowledge contribution and knowledge seeking by users.

List of Tables

Table 2- 1 Survey Items	30
Table 2- 2 Reliability and Validity	32
Table 2-3 The Results of Hypothesized Effects.....	34
Table 3- 1 Literature of Social Media Characteristics	47
Table 3- 2 Relevance to Contribution and Seeking	51
Table 3- 3 Exemplary Literature from the Two Lenses.....	54
Table 3- 4 Recurring Factors in Prior Literature.....	55
Table 3- 5 Exemplar Research of Knowledge Contribution and Seeking	56
Table 3- 6 Cognitive and Affective Needs of Knowledge Contribution and Seeking	60
Table 4- 1 Breakdown of Sample	78
Table 4- 2 Demographic Characteristics of Sample	79
Table 4- 3 Reliability and Validity	84
Table 4- 4 The Results of Hypothesized Effects.....	87
Table 4- 5 Structural Estimate of Moderation Hypotheses.....	88
Table 5- 1 Reliability and Validity	110
Table 5- 2 Results of Hypothesized Effects.....	112
Table 5- 3 Structural Estimate of Moderation Effects	113
Table 6- 1 Overview of Contributions and Implications	129

List of Figures

Figure 1- 1 Structure of the Thesis.....	9
Figure 2- 1 Theory of Planned Behavior	16
Figure 2- 2 Conceptual Model of Technology Acceptance	17
Figure 2- 3 Technology Acceptance Model.....	17
Figure 2- 4 Conceptual Framework	26
Figure 2- 5 Direct Effects of Best Practice Newsletter	35
Figure 2- 6 Moderation Effects of Best Practice Newsletter	36
Figure 2- 7 Direct Effects of Transfer of People	37
Figure 2- 8 Moderation Effects of Transfer of People.....	38
Figure 4- 1 Research Model.....	65
Figure 4- 2 Direct and Interaction Hypotheses	76
Figure 4- 3 Results of Direct Effects of Cognitive and Affective Needs.....	85
Figure 5- 1 Direct and Moderation Hypotheses of Cognitive and Affective Needs on Social Media	107
Figure 5- 2 Results of Knowledge Seeking Model	111

List of Acronyms

AVE	Average Variance Extracted
BPN	Best Practice Newsletter
CFA	Confirmatory Factorial Analysis
CMV	Common Method Variance
GoF	Goodness-of-Fit
ICT	Information and Communication Technology
IT	Information Technology
KM	Knowledge Management
KSM	Knowledge Sharing Mechanism
PLS	Partial Least Squares
SEM	Structural Equation Modeling
SNSs	Social Networking Services
TAM	Technology Acceptance Model
TOP	Transfer of People
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
VIF	Variance Inflation Factor

Chapter 1

Introduction

1.1. Background

Imagine you work for a leading consultancy specializing in information technology strategy. As a management consultant and a team leader, you have extensive exposure to information and intelligence from all over the world. One of your key roles is to leverage information resources and keep your team members abreast of the latest business and technical advancements. It is all about knowledge sharing and how you share knowledge through different kinds of media. You might organize a lunch meeting and enthusiastically share project experiences and lessons by storytelling. You may send an email to all of the team members with an attachment of a recently published report about 3D-printing and believe it will arouse some interest. Everything seems fine thanks to your correct choice of knowledge sharing mechanisms. However, with a wider spectrum of mechanisms from state-of-the-art video-conferencing systems to various social media, are you and your team ready to make the right choice? When to use what mechanism may not be as simple as we thought.

The above story, while fictitious, is not uncommon in real life. Managers and knowledge workers feel the pain of knowledge sharing and struggle to find the proper way to share knowledge. Many managers have begun to realize that there is substantial untapped knowledge within their companies and, if it can be exploited, huge gains will be achieved (O'Dell and Grayson, 1998; Gagné, 2009). Many organizations have invested heavily in knowledge management projects (Lee and Van den Steen, 2010). Indeed, some organizations, such as Boeing, Siemens, Xerox and IBM, have enjoyed significant success from their knowledge management investments (Rao, 2012). However, many organizations implementing knowledge management systems are still suffering from low returns (e.g., Swan et al., 2000; Chua and Lam, 2005; Chai and Nebus, 2012). The huge efforts expended to promote the sharing of expertise do not always reap the expected benefits, especially those technology-related implementations with tremendous upfront investment

(Rigby et al., 2002; Malhotra, 2003). The question of “how to share the right knowledge with the right people at the right moment at a controllable cost” never falls out of interest for executives or scholars.

Firstly, central to this is the proper design and use of knowledge sharing mechanisms so that organization members can be aware of, access and transfer the knowledge available in their organizations. Thus, there is a need to understand the characteristics and roles that knowledge sharing mechanisms play in knowledge sharing. Although this topic is highly related to the extensive research efforts on the strategic choices between codification (largely through information and communication technologies) or personalization strategies (largely through interpersonal interactions, face-to-face meetings), not much concrete and consistent advices are in place and ready to be implemented. A highly cited work by Hansen et al. (2000) purported an 80-20 balance of the two strategies — one used predominantly and the other in a supporting role — rather than using them equally. Other studies have suggested a balanced fashion of knowledge management strategies (e.g., Jasimuddin et al., 2005; Mukherji, 2005). To reconcile these conflicting views, some researchers started looking at the stages of knowledge management by adding a temporal dimension, that is using predominantly one strategy in the beginning and moving towards a balanced portfolio as it matures (Scheepers et al., 2004). Despite the trade-off between the two strategies that has been discussed, there is still a lack of in-depth understanding of the determinants of knowledge sharing mechanism selection and adoption. When to use what mechanism to share knowledge remains an art rather than a science. Concrete advice upon which practitioners can develop tailor-made strategy portfolios is required.

Secondly, with the emergence and growing trend of social media, uncertainties and opportunities are brought to knowledge sharing mechanisms (Koster and Van Gaalen, 2010). Social media has distinct technical features which possibly overcome conventional barriers to knowledge sharing (McAfee, 2006; Kaiser et al., 2007; Paroutis and Al Saleh, 2009). In fact, a number of organizations have realized the value and began to introduce social media internally (Dennison, 2006; Bughin and Manyika, 2007). However, as an advent of technology, there is a lack of systematic research that unveils the

benefits social media yields to users towards better knowledge sharing within organizations. Thus, factors determining the willingness of knowledge sharing on social media is yet to be investigated. Specifically, it is important to explore the reasons for and barriers to users' active participation in knowledge contribution and knowledge seeking respectively. This, in turn, enables us to develop recommendations that were called for by previous research (McAfee, 2006; Kaiser et al., 2007; Paroutis and Al Saleh, 2009), which can help organizations to leverage social media and maintain desired characteristics, so as to drive knowledge contribution and seeking, enhancing knowledge sharing.

1.2. Objectives of the Thesis

This thesis has two major research objectives. The first major objective is to provide executives and scholars with a pragmatic understanding about selecting proper knowledge sharing mechanisms along knowledge sharing processes. The second major objective of this thesis is to uncover the elusive value of social media for sharing information and knowledge in organizations. The first study (i.e., Chapter 2) established a thorough understanding of knowledge sharing mechanism selection and adoption. The rest of the thesis (Chapter 3, Chapter 4 and Chapter 5) investigates knowledge sharing using social media.

The first study (i.e., Chapter 2), addresses a two-fold research objective. Firstly, this study aims to provide clear, organized and integrated recommendations on when to choose what mechanisms in the knowledge sharing process. This study proposes a framework which connects technical characteristics of knowledge sharing mechanisms with specific knowledge sharing stages for better intra-firm knowledge sharing. Two dimensions, namely "Reach" and "Richness", characterize the capabilities of knowledge sharing mechanisms. Two stages, the awareness stage and the transfer stage, are studied in the match of characteristics and knowledge sharing process. This study investigates specified characteristics of knowledge sharing mechanism, and understands why some characteristics are outweighed by others at some stage of knowledge sharing process.

Secondly, it is to further the understanding by examining the contingency effects that technical characteristic influences on knowledge

sharing selection. Drawing upon an integrative perspective of the technology acceptance model (TAM) and the theory of planned behavior (TPB), the first study (i.e., Chapter 2), examines the moderating effects of subjective norm and perceived behavior control on the causal relationships between technical characteristics and knowledge sharing mechanism selection. A thorough understanding of mechanism choice that combines technical characteristics with social and cognitive elements, such as social norm and personal behavior control are achieved.

The rest of the thesis (i.e., Chapter 3, Chapter 4 and Chapter 5) investigates knowledge sharing using social media by addressing three sub-objectives. The first sub-objective is to look at motivations and barriers to participation in knowledge contribution and knowledge seeking. Specifically, three research questions were investigated and answered. First, what are the salient factors affecting knowledge sharing in social media contexts? Second, why are two complementary sides of knowledge sharing needed, namely; knowledge contribution and knowledge seeking perspective? Third, what are the social media characteristics and their roles in knowledge sharing? Scholars have for many years sought to better understand the needs of knowledge contributors and knowledge seekers (e.g., Coleman, 1988). Different perspectives and explanations are provided, social cognitive needs such as self-interest and self-efficacy (Constant et al., 1994; Jarvenpaa and Staples, 2000), social capital needs, like reciprocity expectation and trust (Constant et al., 1994; Jarvenpaa and Staples, 2000), and social exchange needs such as status, respect, compliance, and obligation (Blau, 1964). However, previous studies examining online knowledge sharing behavior have typically relied on a rational decision making perspective (Constant et al., 1994; Jarvenpaa and Staples, 2000). Studies are almost silent about the emotional components which are critical to the decision making of online knowledge sharing, with a few exceptions (e.g., affective-trust, altruism, enjoyment) (e.g., Wasko and Faraj, 2005; Kankanhalli et al., 2005a; Chiu et al., 2006). Few studies explicitly incorporate the emotional and cognitive needs into a complete view (Chiu et al., 2006). In this thesis, a cognitive-affective approach is adopted to combine rational and emotional needs into a unified view to see how

knowledge sharing is motivated and facilitated, from knowledge contribution and knowledge seeking perspective.

Starting from knowledge contribution, the second sub-objective is to understand how social media characteristics will affect knowledge contribution needs. The second study (i.e., Chapter 4), intends to address the two key issues: How do social media characteristics foster knowledge contribution? What are the interaction effects between social media characteristics and knowledge contribution needs (i.e., cognitive or affective), leading to enhanced knowledge contribution willingness? Researchers and practitioners have been showing great interest in understanding the drivers of online knowledge contribution (Wasko and Faraj, 2005). However, knowledge contribution on social media awaits further investigation. Moreover, previous literature shows conflicting views regarding how knowledge contribution is motivated in online community, such as the debate of reciprocity expectation's effect on knowledge contribution willingness (e.g., Bock et al., 2005; Wasko and Faraj, 2005; Chiu et al., 2006). Contingencies on technical environment exist – especially in the sense that the effects of knowledge contribution needs depend on user's perception of technical characteristics (e.g., transparency and interactivity).

Finally, from knowledge seeker's perspective, the third sub-objective is to provide a balanced view in addition to looking at knowledge contribution. A conceptual model of examining how social media characteristics interact with knowledge seeking needs is presented and tested in the third study (Chapter 5). Most research focuses on contribution (Orlikowski, 1993; Constant et al., 1994; Wasko and Faraj, 2000; Bock et al., 2005). However, from knowledge market perspective, equivalent emphasis should be put on the demand side as well. In the third study, using the categorization of cognitive and affective needs, we achieve understanding how social media characteristics can be managed to foster knowledge seeking willingness.

1.3. Developments and Outline of the Thesis

We have highlighted the significance of proper selection and deployment of knowledge sharing mechanisms in organizations. Two major research objectives are addressed by three separate studies. The three studies presented

in this thesis are carried out to explain the usage of knowledge sharing mechanisms in general, from the Reach and Richness knowledge sharing mechanisms prevalent in organizations to the new advent of social media technologies which is yet to confirm their value. The subsequent chapters of this thesis are organized as follows.

In Chapter 2, we explore the relationships between the characteristics of knowledge sharing mechanisms and the selection of mechanisms at two knowledge sharing stages, awareness and transfer stage. To help facilitate bottom-up knowledge sharing between employees, organizations need to ensure that they have a balanced combination of mechanisms by addressing different needs at the awareness and transfer stages of knowledge sharing. Mechanisms with a high degree of Reach help people be aware of the presence and location of useful knowledge that can be reused. Mechanisms with a high degree of Richness enable members in the organization to transfer knowledge effectively. This study is among the pioneer investigations defining and investigating the Reach and Richness of knowledge sharing mechanisms and their influences on the use of knowledge sharing mechanisms. Furthermore, survey results partially confirm the hypotheses that the effects of Reach will be intensified in a highly supportive environment towards the use of the mechanism. The results imply that the technical characteristics alone may not be sufficient, should there be no support from peers and management in organization.

To investigate knowledge sharing using social media, we lay on the theoretical foundations in Chapter 3 for knowledge contribution and knowledge seeking needs. First, we identify the key characteristics of social media, namely; transparency, interactivity, networking facility and content integration. Drawing upon social exchange theory, the four characteristics are related to knowledge contribution and knowledge seeking to different degrees. Transparency and interactivity are relevant to knowledge contribution. Transparency, networking facility and content connectivity are indispensable on the knowledge seeking side. We then survey the literature on knowledge sharing needs from social capital and social cognitive lenses. Eventually, a set of needs salient in knowledge contribution are differentiated from the set of

knowledge seeking needs. Finally, we achieve a cognitive-affective categorization of knowledge sharing needs (cognitive and affective) and resolve the conflicts prevalent in the prior literature.

In Chapter 4, drawing upon the cognitive-affective categorization, we present a study that proposes hypotheses and reports survey results where social media characteristics affect knowledge contribution willingness. A set of hypotheses is proposed to match knowledge contribution needs with characteristics of social media. Survey data from 204 employees of 5 financial service firms in China partially confirms the interaction effects between social media characteristics (i.e., transparency and interactivity) and knowledge contribution needs. Specifically, when transparency is high, the concern of privacy is more likely to affect the willingness to contribute. The effect that self-worth imposes on willingness to contribute is enhanced when transparency is high. The reputation attainment effect is enhanced when transparency is high, and so is the effect of reciprocity expectation. This implication is in line with prior literature findings that reputation and reciprocity are compensated by transparency (Kanagaretnam et al., 2010).

Chapter 5 presents the hypotheses in regards to knowledge seeking using social media with empirical evidence from a large scale survey. The survey results show that cognitive and affective needs are significant antecedents to the willingness to seek knowledge on social media. Most of the interaction effects of social media characteristics (i.e., transparency, networking facility and content integration) on cognitive needs are supported. Transparency intensifies the salience of receptive mood. If the knowledge seeker perceives social media to be transparent, she is more likely to be open minded to the knowledge or expertise not invented here. Networking facility exerts a strong intensifying influence on the formation of affective trust towards knowledge seeking; it also affects the relationship between source availability and knowledge seeking behaviors, albeit a reducing effect. In an environment where people can easily connect with an enormous amount of people, difficulty to find information source is no longer a major problem for knowledge seekers, so the concern of source availability is not a top priority. The content integration of social media exerts a strong intensifying influence

on the formation of a receptive mood towards knowledge; it also affects the relationship between information availability and knowledge seeking behaviors, albeit a reducing effect. Exposed to a large amount of information, the receptive mood of the knowledge seeker is the basis for further exploration of the possible applications of that information or particular knowledge. In sum, we achieve a well-grounded understanding that identifies the characteristics of social media technologies and knowledge seeking needs so as to specify their optimal match.

Collectively, in Chapter 3, Chapter 4 and Chapter 5, we intend to unveil the features of social media that influence knowledge contribution and knowledge seeking. Grounded in the literature on the cognitive and affective needs affecting online knowledge sharing, contingency models of social media characteristics effects on knowledge contribution and seeking were developed. These models are proposed to explain how social media can overcome barriers and fulfill the cognitive and affective needs arising from knowledge contribution and seeking. Finally, this thesis concludes with the contributions from the three studies in Chapter 6. Figure 1-1 gives an overview of this thesis.

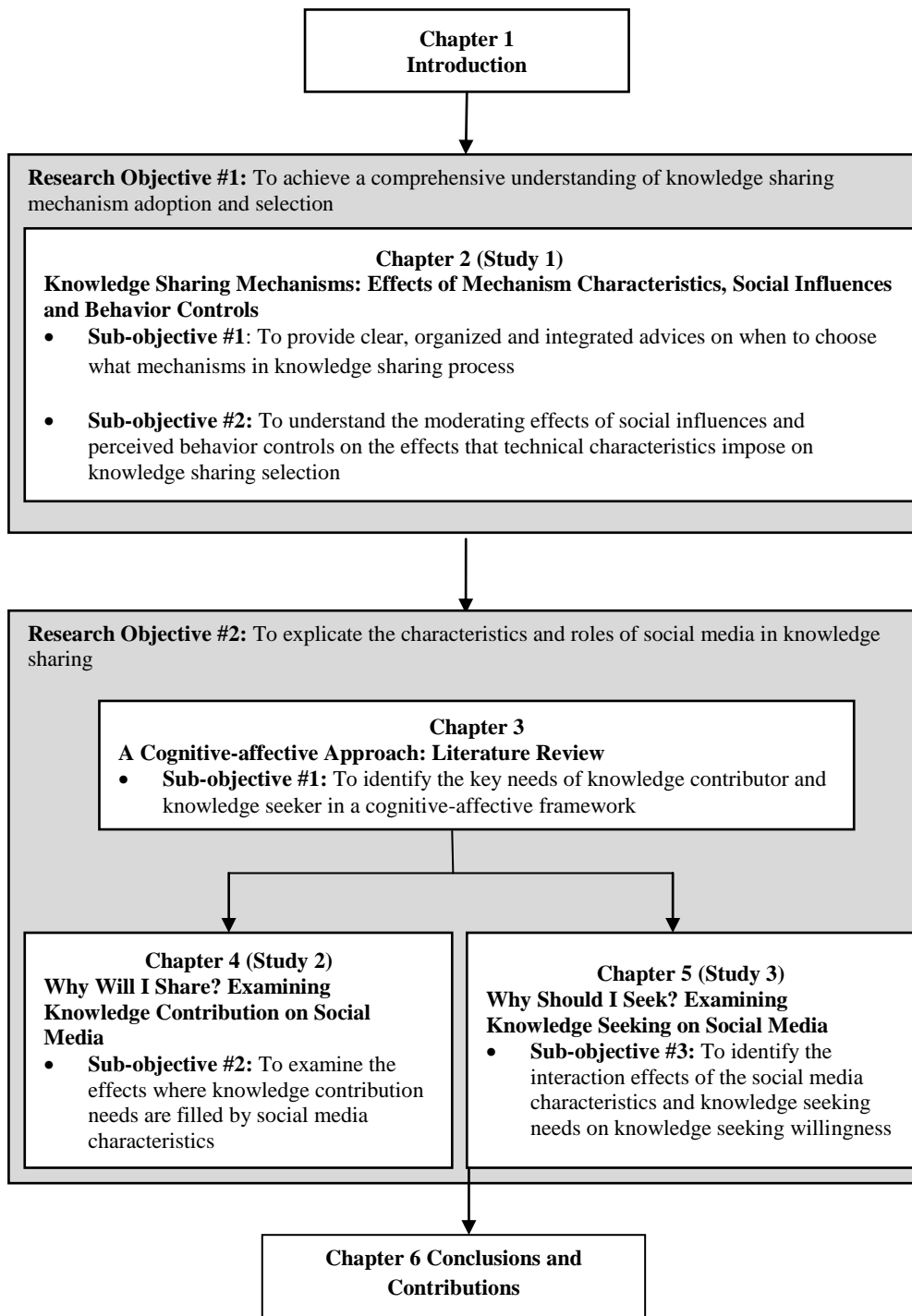


Figure 1- 1 Structure of the Thesis

Chapter 2

Knowledge Sharing Mechanisms: Effects of Mechanism

Characteristics, Social Influences and Behavior Controls

2.1. Introduction

Increasingly in today's economy, success for many organizations is based on possessing and managing knowledge and intellectual capital effectively rather than financial or other "hard" assets. According to some researchers (e.g., Grant, 1996; Spender, 1996; Johannessen and Olsen, 2003; Grant and Baden-Fuller, 2004), knowledge is the most critical asset for an organization and one of the most strategic inputs for sustainable competitive advantages. However, despite its importance and plethora of research (Hackney et al., 2005; Jasimuddin, 2006), knowledge sharing remains a major challenge for many managers, especially when it comes to how to design and deploy mechanisms which improve knowledge sharing. Even with the advancement in Information and Communication Technologies (ICT), effective knowledge sharing remains elusive because of the geographical, cultural, temporal, and organizational barriers that often divide organizations. Particularly in large organizations, the dangers of "re-inventing the wheel" and insufficient utilization of existing knowledge are very real. This situation is vividly illustrated when Lew Platt, chairman of Hewlett-Packard, lamented: "I wish we knew what we know at HP" (O'Dell and Grayson, 1998).

Central to effective knowledge management is the design and the use of appropriate knowledge sharing mechanisms which allow organization members to be aware of, access and transfer available knowledge in the organization. However, most research in knowledge sharing has focused on aspects like how relationships (e.g., trust) between the knowledge owner and the receiver, and the characteristics of knowledge (e.g., tacit, causal ambiguity) affect knowledge sharing (e.g., Szulanski, 1996). Our literature review on how to select the appropriate knowledge sharing mechanism selection shows conflicting findings, indicating the lack of an overall framework that addresses how mechanisms should be used and selected in knowledge sharing process.

Most research on knowledge sharing mechanisms, with a few exceptions, does not adequately relate the characteristics of knowledge sharing mechanism, social influences and facilitating conditions within an organization to the choice of mechanisms (Venkatesh and Davis, 2000). Such understanding is urgently required as there is a lack of systematic and clear advices for management to follow. Thus, this study is to address the first research objective of the thesis, that is, to establish a thorough understanding of when to choose what mechanisms according to knowledge sharing process.

In this research, we propose a theoretical framework based on the Technology acceptance model (TAM) (Davis, 1986) and the Theory of Planned Behavior (TPB) (Ajzen, 1985; Ajzen, 1991) that may remedy this gap. To help facilitate bottom-up knowledge sharing between employees, organizations need to ensure there is adequate adoption of the knowledge sharing mechanisms in their organization. A variety of theoretical perspectives has been introduced to explore the determinants of acceptance and usage of knowledge sharing mechanisms. One important line of research, the Technology Acceptance Model (TAM) (Davis, 1986) and its extensions (e.g., Venkatesh and Bala, 2008), influences the enduring research on the implementation of knowledge management technology. TAM has been employed in numbers of studies to predict user acceptance of information system, and specifies two beliefs, perceived usefulness and perceived ease of use, as determinants of usage intentions towards actual IT usage.

Grounded in social psychology research, another important strand of research, the Theory of Planned Behavior (TPB), incorporates additional factors by taking influences from significant others, perceived ability and control into consideration, which are not included in TAM but have been shown to be important determinants of intention. In the context of the subject of this study, i.e., knowledge sharing mechanism selection, an integrated view of the TAM and the TPB, looking into user acceptance intention by examining behavior beliefs, specifically, perceived usefulness and perceived ease of use, subjective norm and control belief as key determinant, is adopted.

A large scale survey was conducted in Singapore to investigate the core factors behind the adoption intention. Our findings stressed the importance of mechanism characteristics variables (perceived Reach and Richness) as salient beliefs for predicting knowledge sharing mechanism adoption, and found out the partial interaction that social influences put on the mechanism characteristics variables within an integrated framework. The rest of the paper is organized in the following manner. In Section 2.2, a thorough literature review on the related theories was discussed. Then, we proposed our hypotheses in Section 2.3. The research methodology and survey analysis were presented in Section 2.4 and Section 2.5 respectively. Finally, Section 2.5 discusses the findings, contributions, and implications that this study made to knowledge sharing literature.

2.2. Literature Review

2.2.1. Knowledge Sharing

Knowledge sharing is an activity to exchange knowledge (i.e., information, skills, or expertise) among co-workers, colleagues and business partners within organization. The knowledge possessed by each individual is a product of his experience and norms by which he evaluates inputs from his surroundings (Davenport and Prusak, 2000). Related to information sharing, knowledge sharing is emphasizing the potential to drive action. Researchers believe that all information is considered knowledge but knowledge includes information and know-how (e.g., Wang and Noe, 2010). Many researchers use the terms knowledge and information interchangeably in knowledge sharing research. We adopt this perspective by considering knowledge as information processed by individuals including ideas, facts, expertise, and judgments to drive actions (Wang and Noe, 2010).

2.2.2. Knowledge Sharing Mechanisms

Knowledge sharing mechanism states how and by what intermediate steps, certain knowledge which follows a set of initial conditions is delivered to knowledge receiver. In a previous research, Chai et al. (2003) summarizes knowledge sharing mechanisms into categories which include transfer of people, annual forums/internal conferences, communities of

practice/international teams, boundary spanners, rules/procedures/best practice guidelines/lesson learned database, audit/internal assessment, and benchmarking. As a research topic, the use of knowledge sharing mechanism has been examined by researchers in different but related areas such as global R&D management, best practice sharing, organizational learning and technology transfer (e.g., Kim and Nelson, 2000; Cabrera and Cabrera, 2005). Companies use a wide range of mechanisms to transfer knowledge. With few exceptions (Gray and Meister, 2006), previous research merely describes what the mechanisms are but offers few insights on when and how should they be used. What and how different knowledge sharing mechanisms should be used has been long-pursuing topic in this domain. For instance, de Meyer (1991) advised that, in order to build up relationships, face-to-face meetings should be the first mechanism. Moreover, recent research by Berends et al. (2006) and Song et al. (2007) concluded that effective knowledge sharing and dissemination in R&D organizations requires a broad and balanced portfolio comprising IT co-location approaches. Considering the debates being held, to obtain an integrated and convincing answer, we build our research on characteristics of knowledge sharing mechanism, reach and richness, rather than one or two specific knowledge sharing mechanisms. In doing so, we can explicitly see which characteristics would be preferred at what knowledge sharing stage.

Further, knowledge sharing mechanisms are treated as if they had the same capacity and characteristics without much emphasis on their difference. For example, Gray and Meister (2006) examine knowledge sourcing method piece by piece, and they did not adequately address the interactions between knowledge sharing processes and knowledge sharing mechanisms characteristics. The lack of comprehensive understanding of knowledge sharing characteristics leads to piecemeal approaches to the design and deployment of knowledge sharing system. Therefore, a closer examination of knowledge sharing mechanism characteristics and their interactions with knowledge sharing process is needed. It would be helpful to disentangle the puzzle of knowledge sharing selection and enable companies to better design a knowledge sharing system for better knowledge flow.

2.2.3. Reach and Richness of Knowledge Sharing Mechanisms

Perceived Reach were first proposed by Evans and Wurster (1996) to explain the change in economics of information brought about by the Internet. It was later expanded by research into digitized knowledge Reach via communication channels (Sambamurthy et al., 2003). Reach is associated with connectivity, or its ability to affect a large number of receivers at one time. This characteristic is expanded to knowledge sharing mechanisms by Chai et al. (2003) to include the ability to overcome geographical, temporal and hierarchical barriers. The origin of the concept of Richness refers to a medium's material capability to convey certain types of information, denoting the ability of certain media to process rich information in an organization (Daft and Lengel, 1984). Later, Richness was expanded to the medium capabilities of supporting interactions, nurturing personal relationship, and providing multiple cues for sense-making (Sambamurthy et al., 2003; Hildreth and Kimble, 2004; Overby et al., 2006). The concept of Richness in this study is refined to include three distinct dimensions: immediacy of feedback, language variety, and personal focus of knowledge sharing mechanisms.

2.2.4. Knowledge Sharing Process

The knowledge sharing process we look at is that individual employee increases receivers' awareness of knowledge existence, and followed by in-depth communication of explaining and articulating context and relevance associated with the knowledge and the receiver. Knowledge awareness involves conscious action on the part of the individual who possesses the knowledge in order to make knowledge available to others within the organization, and knowledge transfer is to present this knowledge to be understood, absorbed and used by others (Ipe, 2003). What we examine in this study is the intention to use knowledge sharing mechanism at individual level across the two stages. Thus, we did not differentiate corporate knowledge from individual private knowledge in this study. Knowledge as a corporate asset, which needs to be harnessed and shared at individual level to enhance

key organizational capabilities (Nonaka and Takeuchi, 1995). Although ownership of knowledge would affect knowledge sharing motivation, the selection and adoption of knowledge sharing tool is largely related to its characteristics and usefulness. The process of knowledge sharing comprises of stages such as awareness, transfer, evaluation, and adaptation (Chai et al., 2003). In the awareness stage, the knowledge receiver comes to realize the existence of the knowledge that is potentially needed. After that, the event of knowledge transfer takes place where the knowledge holder sends the details of the knowledge content to the knowledge receiver through direct or indirect interactions. Once the content of the knowledge is received, the receiver performs evaluation to assess the applicability of the knowledge by conducting trials or experiments. Lastly, the adaptation occurs where the receiver customizes the knowledge obtained and implements it in his own context by recreation.

In this study, we focused on the first two stages, namely knowledge awareness stage and knowledge transfer stage, which are important steps in determining knowledge sharing outcome. At the awareness stage, potential knowledge receivers come to know about the existence of certain knowledge, and have the interest to explore further. At the transfer stage, the receivers receive the knowledge of interest from the knowledge source, and are convinced that the knowledge can be of use to his/her context. The knowledge awareness and transfer stages are the two key stages where knowledge sharing mechanisms play important roles as they are mostly related to the interaction between knowledge receivers and knowledge sources, as well as their adoption and selection of knowledge sharing mechanism.

A key difference between the process model in this study and studies such as Szulanski (1996) is the inclusion of the stage awareness. It is a distinct extension by differing from many prior studies in knowledge transfer (e.g., Szulanski, 1996; Lam, 1997), which assume that the knowledge receiver knows the existence and source of useful knowledge. However, in many organizations, the lack of effective knowledge sharing is due to the fact that employees and management do not know what knowledge exists in the organization (O'Dell and Grayson, 1998). More importantly, conceptualizing

the knowledge sharing process into two stages enables us to see the different usage of knowledge sharing mechanisms. At the awareness stage, the desirable outcome is to have most, if not all organization members, regardless of their geographical locations and positions, aware of the presence and the location of knowledge which may be relevant to their work. At the transfer stage, the desirable outcome is a successful transfer of knowledge from knowledge source to where the knowledge is needed. Intuitively, one can assume that these differences may lead to the fact that different mechanisms are required at the different stages, depending on the mechanisms' abilities to meet the specific requirements of each stage.

2.2.5. Theory of Planned Behavior

The Theory of Planned Behavior (TPB) (Ajzen, 1991) is a dominant model for predicting and understanding human intentions and behavior (Conner and Sparks, 1996; Godin and Kok, 1996; Abraham et al., 1998; Armitage and Conner, 2001). Attitude refers to the person's overall evaluation of the outcome, whereas Subjective Norm (SN) refers to perceptions of social pressure from significant others to perform the behavior. Perceived behavioral control refers to the perceived ease or difficulty of performing the behavior. It is assumed to reflect past experience as well as anticipated impediments and obstacles (Godin et al., 2005). Figure 2-1 depicts the theory in the form of a structural diagram.

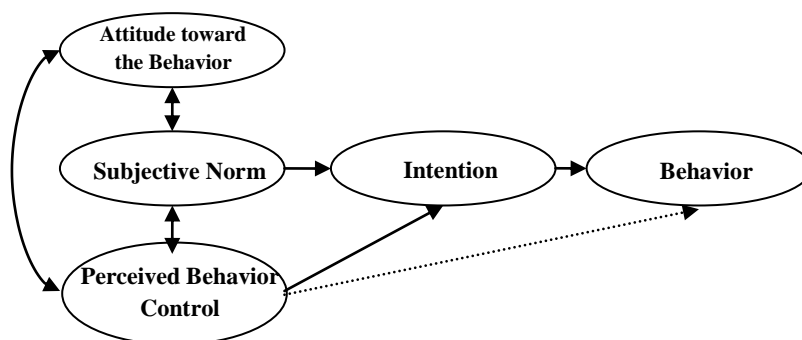


Figure 2- 1 Theory of Planned Behavior

2.2.6. Technology Acceptance Model

Davis (1986) first proposes that system usage could be explained and predicted by users motivation, which is affected by external system characteristics and capabilities as shown by Figure 2-2. Following the steps of Fishbein and Ajzen (1975), the model is refined as shown in Figure 2-3. Three sets of factors including perceived ease of use, perceived usefulness and intention toward usage affect the users' actual behavior to use the system. Specifically, the intention to use a new information technology is affected by two beliefs: perceived usefulness and perceived ease of use. In addition, TAM presents that perceived usefulness depends upon ease of use (Bagozzi et al., 1992).

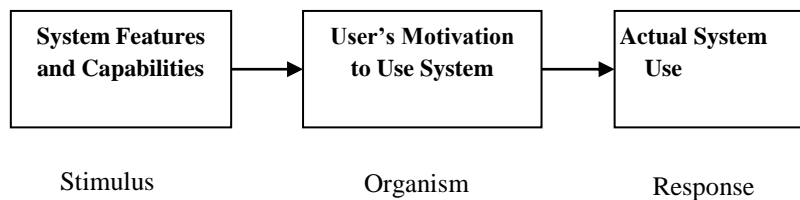


Figure 2- 2 Conceptual Model of Technology Acceptance

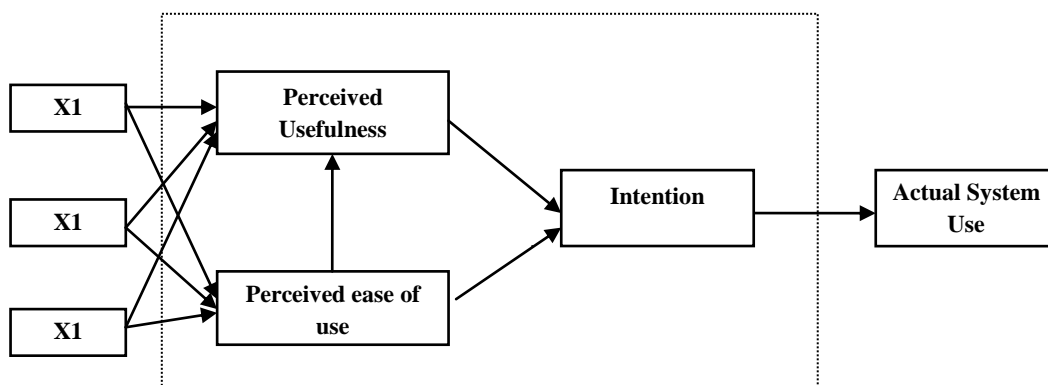


Figure 2- 3 Technology Acceptance Model

2.2.7. Integrate the TAM with the TPB

In this study, the perceived usefulness of knowledge sharing mechanism is proposed to be comprised of perceived Reach and perceived Richness. The specification was inspired by Venkatesh and Bala (2008) which urged Information System (IS) researchers to examine the influences of design characteristics on user acceptance, particularly to drill down into what design

characteristics reflect what specific aspects of perceived usefulness. It would help identify and improve specific design characteristics to enhance certain aspects of perceived usefulness. Furthermore, this study examines the direct and moderating effects of social influence variables and behavior control variables, on the proposed direct relationships of perceived Reach and Richness. The target behavior is the intention to select knowledge sharing mechanism.

The direct effects of perceived usefulness, perceived ease of use, subjective norm and perceived behavior control have been studied and have conclusive roles, in that, studies found considerable impacts of them on technology acceptance. However, the relationships between technical characteristics and social variables, which consider social influences, are inconclusive. Taking some exemplar studies to illustrate, Schepers and Wetzels (2007) found a significant influence of subjective norm on perceived usefulness and behavioral intention to use. It concluded that the effect of subjective norm was mediated by perceived usefulness, but it did not indicate whether the effect was fully mediated. In this research, we argued that the effects of perceived usefulness of knowledge sharing mechanism were moderated by social support and facilitating conditions. This research effort was called by Venkatesh and Morris (2000) for looking into situations and circumstances to identify potential moderation effect where technical characteristics interact with social influences as well as resources conditions.

The influence of social support is noticed by behavior psychologists that perceived social support appears to show additive effects as well as interactive effects on intentions (e.g., Povey et al., 2000). Thus, increasing subjective norms is likely to directly increase intentions, and also will influence intentions indirectly through interaction with other predictors. The moderating effects of perceived social support suggest different intervention strategies for those low and high in social support.

In addition to subjective norm, perceived behavior control had a direct effect on actual behavior when the person did not have complete control of it. On the context of introducing new technology or innovation, organization

tried to launch it by making favorable situations for users of the technology, such as training on technical aspects. As time goes by, in post-implementation context, users gained experiences and control over the technology or tool, and perceived behavior control was strengthened. Thus, given high perceived behavior control, the organizational efforts that aim to facilitate conditions should be different from those used in introducing new technologies. The moderation effect of perceived behavior control is worthwhile to explicate.

While wishing to explore all possible moderation effects, we anticipated that the subjective norm variable and perceived behavior control variable might moderate the effects of perceived usefulness. We expected perceived usefulness to be more predictive of intentions when the social environment is supportive of the behavior, or when the individual's control over the knowledge sharing mechanism is high. Elucidation of what moderation effects social influence variable or personal behavior control produces might give insights into the social processes or cognitive processes by which perceived usefulness influences intentions. Therefore, we adopted an integrated model which provide a comprehensive understanding of knowledge sharing mechanism use (Taylor and Todd, 1995b). A holistic picture of factors that influences knowledge sharing mechanism selection, including direct and possible moderation effects, would have more advantages than a single model merely looking at direct effects.

2.3. Research Hypotheses

The central hypotheses are related to the determinants towards the selection of knowledge sharing mechanism. In this section, we will develop the hypotheses based on the existing literature, in an integrative TAM and TPB model. The overall research model can be found in Figure 2-4.

2.3.1. Perceived Reach and Richness

According to TAM, perceived usefulness has a direct effect on the adoption of technology. Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1986). In the knowledge sharing mechanism selection

context, perceived Reach and Richness of a mechanism reflect its usefulness. At the awareness stage of knowledge sharing, the crucial ingredient for effective knowledge sharing is to make as many people as possible aware of the knowledge's existence in the organization, so as to overcome the obstacle caused by geographical, temporal and hierarchical factors. In organizations, especially large ones, it is very common that employees are located in different locations. Thus, a mechanism that can overcome geographical and temporal barriers is more likely to be used when trying to create awareness of certain knowledge. A mechanism which can help to inform employees about the existence of knowledge without the simultaneous presence of the employees and knowledge source (i.e., high in Reach) is more likely to be effective at awareness creation than a mechanism which calls for simultaneous presence (i.e., high in Richness). In addition, as it is not possible to predict who needs what knowledge and from whom (Tsoukas, 1996), a mechanism able to overcome functional or departmental barriers is likely to be useful at the awareness stage. According to previous studies in technology acceptance model, mechanisms of high perceived usefulness is more likely to be adopted towards usage intention. Mechanism with high Reach will be preferred at the awareness stage because of the highly perceived usefulness. Therefore, at first we propose that:

H2.1 Reach will positively influence a user's intention at the awareness stage towards the actual use of knowledge sharing mechanism.

At the transfer stage, the core ability of a knowledge sharing mechanism is to transfer the various types of information (Daft and Lengel, 1984). Knowledge in organization is stored in many different forms such as documents representing explicit knowledge, insights and experiences as tacit knowledge. The mechanism with the ability to transfer a wide range of information through various forms such as words, ideas, or concepts is more likely to be used at the transfer stage rather than the awareness stage. Certain forms of knowledge can only be transferred via means such as body language or metaphors (Nonaka, 1995). In addition, the mechanism allowing high interaction between knowledge sender and receiver is important to obtain the response and feedback immediately and accurately, especially at the transfer

stage. Both the sender and the receiver need to feel the other's feelings and to learn from the others quickly so that they can communicate effectively. Research has shown that knowledge, especially tacit knowledge in nature, requires rich media (e.g., De Long and Seemann, 2000; Chai et al., 2003). A mechanism which is able to establish a close relationship between the sender and receiver is more likely to be used at the transfer stage. Thus, a knowledge sharing mechanism with high Richness ability to transfer a wide range of information, allow high interaction and in favor of building personal relationship is likely to be perceived useful at the transfer stage. Thus, according to the TAM, perceived Richness will be likely to lead to the selection of knowledge sharing mechanism at the transfer stage. Thus, we propose that,

H2.2 Richness will positively influence a user's intention at the transfer stage towards the actual use of knowledge sharing mechanism.

2.3.2. Perceived Ease of Use

Perceived ease of use, which has been widely studied as a factor affecting technology acceptance, refers to "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1986; Bagozzi et al., 1992). There are three aspects of ease of use. The first of ease relates to physical effort, while the second relates to mental effort. The last one is related to perceptions of how easy a system is to learn. The mechanism which could be used to save physical effort and mental effort will be more likely to be accepted by individual. The easier to learn, the more possible the mechanism will be selected to use. Thus, according to the TAM, a high perceived ease of use knowledge sharing mechanism will be more likely to be adopted, both for creating awareness and transferring knowledge. Thus, we propose that:

H2.3a. Perceived ease of use will positively influence user's intention at awareness stage towards actual usage of knowledge sharing mechanism.

H2.3b. Perceived ease of use will positively influence user's intention at transfer stage towards actual usage of knowledge sharing mechanism.

2.3.3. Subjective norms

According to the TPB, subjective norm is an index of importance individual assigns to referents; it is conceptualized as social pressure or social norm that arise from the context people is involved in (Aiken and West, 1991). Studies show that network externalities are important when there is a critical mass (Markus, 1990). In line with this reasoning, in knowledge sharing contexts, we define knowledge worker's subjective norm as the importance they give to their social network in the organization, which includes potential knowledge receivers and senders. Thus, a user who perceived high social support over his usage of a specific knowledge sharing mechanism, will be more likely to accept and adopt the mechanism when he/she wants to raise awareness or transfer of certain knowledge. Thus, we hypothesize that,

H2.4a. Perceived social support will positively influence user's intention at awareness stage towards actual usage of knowledge sharing mechanism.

H2.4b. Perceived social support will positively influence user's intention at transfer stage towards actual usage of knowledge sharing mechanism.

2.3.4. Perceived behavior control

The perceived behavior control over knowledge sharing mechanism was interpreted both as internal factors and external factors (Bandura, 1977). Internally, it is self-efficacy, that is, and an individual's self-confidence in ability to perform a behavior (Bandura, 1977). Applied in knowledge sharing mechanism selection context, individual's perceived behavior control could be reflected by their past experiences and skills level towards a specific knowledge sharing mechanism. On the other side, perceived behavior control could be the external factor of facilitation conditions. The availability of resources such as time, money and other specialized resources reflects the external aspect of perceived behavior control. Availability of enough skills, experiences, monetary, time and management support will positively influence the intention to select knowledge sharing mechanism. Thus, we hypothesize that,

H2.5a. Perceived behavior control will positively influence user's intention at awareness stage towards actual usage of knowledge sharing mechanism.

H2.5b. Perceived behavior control will positively influence user's intention at transfer stage towards actual usage of knowledge sharing mechanism.

2.3.5. Reach and Subjective Norm

According to Venkatesh and Davis (2000), subjective norm influences both perceived usefulness and intention to use in the model of TAM2. For example, a person who thinks most of their referents (co-workers or supervisors) would approve of his choice of one knowledge sharing mechanism over another, would be more likely to select that preferred one. Subjective norm could also influence selection intention through indirect persuasion by others' experiences of the mechanism to shape one's own perception of its benefit and cost. Especially for the acceptance of interactive information and communication technologies, studies emphasize the importance of the acceptance of mass of users in the network (Markus, 1990). In our context, the utility of knowledge sharing mechanism will increase with the total number of users engaged in this mechanism. Thus, the knowledge sharing mechanism in high Reach will be more likely to require the enhanced social support from peers or colleagues. As social support associated with adoption intention rises, users are likely to believe that other referents would be more likely to be aware of the knowledge, and perceive the knowledge sharing mechanism more useful, thereby leading to an increased adoption intention. Thus, we hypothesize,

H2.6. The Reach of a knowledge sharing mechanism is more positively related to the intention to use when the user perceives high social support than when the user has low social support.

2.3.6. Richness and Subjective Norm

Subjective norm is also likely to moderate the effect of perceived Richness on the intention to select knowledge sharing mechanism. Although a perceived Richness renders important capability to convey information and support effective communication, its impact on knowledge management usage

intention may depend on the extent to which the user perceives support from others that are important within an organization, like supervisors, team workers or colleagues. A knowledge sharing mechanism might be perceived useful by supporting rich communication with social cues in presence, but it will not enhance its possibility to be selected if it does not have enough support from user's significant knowledge sharing partners. Knowledge sharing mechanism with high Richness, e.g., face-to-face meeting or transfer of people, can be in effective only when there is a norm of socialization. Rich sharing mechanism can only be exploited with the consent from potential parties involved. The more Rich a knowledge sharing mechanism is, the more it needs social support from peers who prefer direct and real-time communication. The interaction between Richness and subjective norm is critical to the selection of knowledge sharing mechanism. Without a simultaneous consideration of perceived Richness and subjective norm, it is likely to encounter a problem that user will not choose a mechanism even if it is perceived useful, especially when short of social support and approval. Hence, we hypothesize,

H2.7. The Richness of a knowledge sharing mechanism is more positively related to the intention to use when the user perceives high social support than when the user has low social support.

2.3.7. Reach and Perceived Behavior Control

Perceived behavior control is likely to moderate the effect of perceived usefulness on the intention to select knowledge sharing mechanism. Although, experience and self-efficacy were not explicitly included in the original TRA, their roles were empirically examined using a cross-sectional analysis (Davis et al., 1989), and some moderation effects were found. Although Reach increases information and contact access by overcoming various barriers, perception of usefulness of a knowledge sharing mechanism depends on the extent to which user can have full control over the mechanism. Although a knowledge sharing mechanism may possess capabilities that are helpful to user's work, without prior experiences or enough skills to organize and operate the mechanism, user may not be able to exploit it and are less

likely to choose the mechanism. It will further reduce user's perception of usefulness of the mechanism. The better a mechanism can spread information, and the more it needs user to be capable of handling the mechanism. Perceived Reach will exert a more positive impact on intention to select knowledge sharing mechanism if the user has enough skills and experiences to properly use it. Thus, we hypothesize,

H2.8. The Reach of a knowledge sharing mechanism is more positively related to the intention to use when the user perceives high behavior control than when the user perceives low behavior control.

2.3.8. Richness and Perceived Behavior Control

The operation of high Richness knowledge sharing mechanism usually involves a lot of resources in organization, such as face-to-face meeting, transfer of people, or corporate annual conference. Take transfer of people for instance, it needs to assign expert from headquarter to subsidiaries for a period of time, and requires cooperation and scheduling coordination between head office and branches. Time and resources consumed during the implementation of transfer of people is much more than sending an electronic notice via email system, which is of high Reach. Thus, the impact of perceived Richness on intention to select knowledge sharing mechanism will be subject to the resources that the user can access. Without enough management support and resources, user may not be able to organize and employ the mechanism, and it will further affects his perception of usefulness of the mechanism. To this end, we hypothesize,

H2.9. The Richness of a knowledge sharing mechanism is more positively related to the intention to use when the user perceives high behavior control than when the user perceives low behavior control.

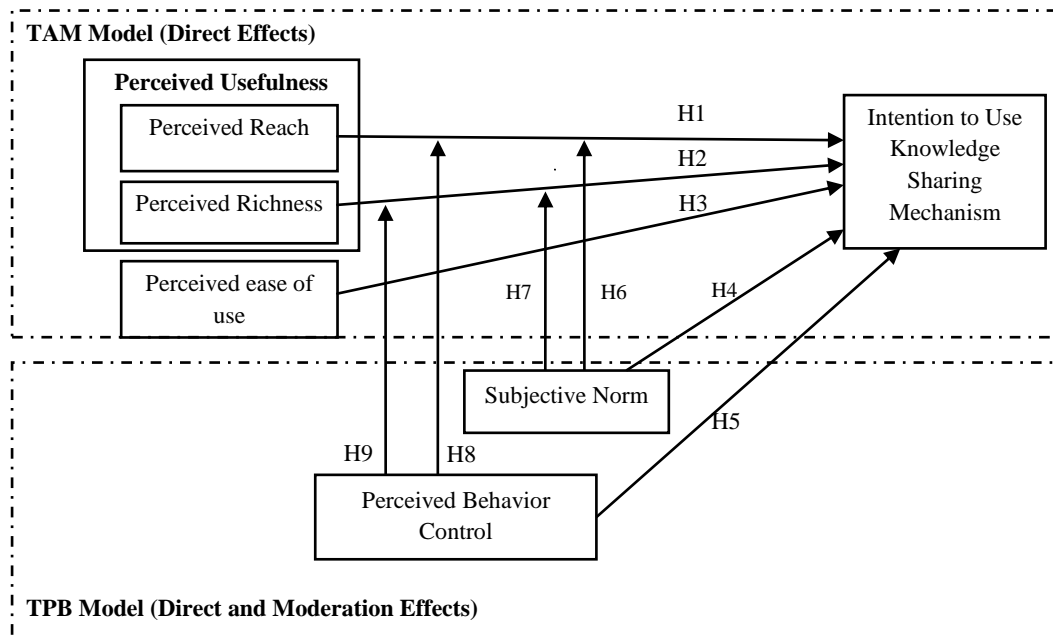


Figure 2- 4 Conceptual Framework

2.4. Research Methodology

To test our hypotheses, the survey was conducted among part-time graduate students from Industrial & Systems Engineering (ISE) department and Management of Technology (MOT) program under Division of Engineering and Technology Management (D-ETM), National University of Singapore (NUS). Respondents were enrolled in multiple modules across departments and a screening question was put forward in the first page of the questionnaire in avoidance of duplicate responses from one respondent.

Our survey was conducted among participants who have rich knowledge and experiences of using knowledge sharing mechanism to achieve their target and can be considered in a certain way as domain specialists. We screened those unqualified respondents out by asking questions about their experiences of knowledge sharing mechanisms usage. In the first page of the questionnaire, the degree of engagement that respondents in knowledge sharing was asked, and we asked about their experiences of using the two knowledge sharing mechanisms. Those respondents who has less or non-recent knowledge sharing experiences using the two knowledge sharing mechanisms were excluded, especially those with the frequency less than 1 time per month, as well as more than 1 year since their last usage of the mechanisms.

Questionnaires were distributed prior to or after the evening classes attended by these students, all of whom have a degree in engineering or physical sciences. A total of 129 responses out of 160 (80.6%) were received. 96 out of 129 are eligible for subsequent analysis. 67% percent of the respondents are male. This large ratio reflects the fact that respondents are all from engineering faculty. So far, no evidence has showed that gender plays a difference in the field of knowledge management. More than 74% of the participants have more than 2 years of working experience, while 94% of the respondents also have the job title of engineer, senior engineer or above. About 75 percent of them work or have working experience in engineering or Research and Development department, which is assumed to be a knowledge-intensive context involving lots of knowledge sharing activities. The graphical descriptive analysis was included in Appendix C.

In the questionnaire, we asked questions about two knowledge sharing mechanisms, and let respondents rate their perception of Reach and Richness towards these two mechanisms. Then, the respondents were asked to select preferred knowledge sharing mechanism at the stages of knowledge awareness and knowledge transfer. Our design is to use specific knowledge sharing mechanisms in the questionnaire as the proxy of reach and richness. Because reach and richness are multi-facet and conceptual terms which is difficult to be perceived by the respondents. The choice of reach or richness is not straightforward to respondents. Thus, we need to use concrete and commonly available knowledge sharing mechanisms to detect the preference of reach or richness. We choose best practice newsletter and transfer of people because of their characteristics. According to Evans and Wurster (1996)'s finding, there is a trade-off between reach and richness. Mechanisms with high richness tend to have a low reach and vice versa. As seen from the prior knowledge sharing mechanisms research (Chai et al., 2003), transfer of people is high in richness low in reach versus best practice newsletter low in richness high in reach. The richness and reach of other knowledge mechanisms falls in between and the effect of reach or richness would be confounded. By choosing two mechanisms representing reach and richness respectively, we would examine the selection intention stage by stage by looking at whether reach is the right

characteristics preferred by knowledge workers. Similarly, it would be clear whether richness is more likely to be chosen at awareness or transfer stage. In doing so, we would be able to test the preference of Reach or Richness by asking whether users will select one mechanism over the other, at the awareness stage and the transfer stage. The definitions of these two mechanisms are provided at the start of the questionnaire.

We defined “best practice newsletter” as “guideline, technical note or corporate newsletter distributed in electronic or paper format.”, and “transfer of people” as “the practice where staff is transferred: i. from headquarter to subsidiary, bringing new knowledge to the subsidiary; or ii. from subsidiary to headquarter in order to learn new knowledge/technology.” Table 2-1 lists all of the construct items of instruments. This study measures seven constructs: Reach, Richness, perceived ease of use, subjective norm, perceived behavior control, and usage intention at the awareness and the transfer stage. All constructs were measured using multiple items. All values are: *, significant at $p < 0.05$; **, significant at $p < 0.01$; ***, significant at $p < 0.001$ in two-tailed tests; Weight/Loading (1) shows the results of Best Practice Newsletter; Weight/Loading (2) shows the results of Transfer of People. To avoid common methods bias, reverse scale was used, and formats of rating scale varied across type of question. The construct development was shown in Appendix A. The questionnaire was attached in Appendix B.

2.5. Data Analysis

The assessment criteria of measurement model is summarized in terms of reflective and formative constructs, and research hypotheses in the structural model are tested, using Partial Least Squares (PLS) by following the general procedures proposed by Chin (1998).

As second generation data analysis techniques (Bagozzi, 1982), Structural Equation Modeling (SEM) techniques, LISREL and Partial Least Squares (PLS), are of tremendous benefits to researchers in social and psychological research. The great advantage lies in answering interrelated research questions in a systematic manner. SEM has been used to a wide extent in empirical articles across leading journals, with component based

analysis like PLS and covariance based analysis like LISREL being the two most common techniques (Gefen et al., 2000).

There are three main reasons supporting the choice of PLS as the analysis tool in this study. For our research model which is a combination of theory building and testing, aims to explore critical underlining factors which influence the knowledge sharing mechanism adoptions beyond testing the existing theories. Consequently, PLS is more suited for this theory building and testing process, in contrast to the covariance-based SEM. In regards to sample size, PLS is especially suited for the analysis of small data samples (Chin, 1998).

Finally, the types of relationships between observed variables and latent variables that these two methods support are different (Gefen et al., 2000). Reflective observed variables are correlated and unidimensional representing latent construct. Formative observed variables cause the latent construct and represent different dimensions of it. However, these variables are not supposed to be correlated with each other or unidimensional (Chin, 1998). In this study, besides conventional reflective constructs, perceived usefulness is replaced by Reach and Richness, and they are formative constructs. PLS supports both types of observed variables (Barclay et al., 1995; Chin, 1998).

Table 2- 1 Survey Items

Construct		Weight/ Loading (1)	Weight/ Loading (2)	Items (1. "strongly disagree"; 7, "strongly agree")
Reach_NUM	(Formative)	-0.17	0.56	I will choose this mechanism, when I want to share knowledge to as many people as possible at one time
		1.16	0.78	I will choose this mechanism, when I want to explain my knowledge to many people at the same time
		0.16	-0.44	I will choose this mechanism, when I want to convey my knowledge to a lot of people
Reach_PLACE	(Formative)	0.10	0.44	I will choose this mechanism, when I want to share knowledge to any location in the world
		-0.11	0.21	I will choose this mechanism, when I want to share knowledge to many locations at the same time
		1.03	0.69	I will choose this mechanism, when I want to share knowledge to a different location
Reach_TEMP	(Formative)	0.57	0.92	I will choose this mechanism, when I want the recipient to have access to the knowledge at any time he/she wants
		0.11	-0.60	I will choose this mechanism, when I want the recipient to have access to the knowledge for a long time
		0.47	0.44	I will choose this mechanism, when I want the recipient to have access to the knowledge in the future
Reach_HIERAR	(Formative)	0.10	0.20	I will choose this mechanism, when I want to share knowledge with people of different seniority level in the company
		0.94	0.47	I will choose this mechanism, when I want to share knowledge with people from a different product /technology unit in the company
		0.21	0.48	I will choose this mechanism, when I want to share knowledge with people from different functions in the company
Richness_CONTENT	(Formative)	0.79	0.12	I will choose this mechanism, when I want to share knowledge which contains facts
		-0.29	0.24	I will choose this mechanism, when I want to share knowledge which contains opinions
		0.23	0.12	I will choose this mechanism, when I want to share knowledge which contains scientific principles
		0.22	0.08	I will choose this mechanism, when I want to share knowledge which contains know-how
		-0.56	0.86	I will choose this mechanism, when I want to share knowledge which contains past experiences
Richness_FEED	(Formative)	0.23	0.11	I will choose this mechanism, when I want to know what others think about the knowledge immediately
		0.57	-0.05	I will choose this mechanism, when I want to be able to react to others' feedback immediately
		0.36	0.96	I will choose this mechanism, when I want to be able to learn from others quickly
Richness_PERSONAL	(Formative)	-0.22	0.72	I will choose this mechanism, when I have a close relationship with the recipients
		0.15	-0.58	I will choose this mechanism, when I have a social relationship with the recipients
		1.04	0.65	I will choose this mechanism, when I have a personal relationship with the recipients
Perceived ease of use	(Reflective)	1.02**	0.69**	I will choose this mechanism, because it is easy for me to use or organize
		0.94***	0.97***	I will choose this mechanism, because it is easy for me to learn to be skillful
		0.81**	1.04**	I will choose this mechanism, because it is easy for me to do what I want to
		0.90**	1.05**	I will choose this mechanism, because it is easy for me to get assistance or help when I encounter difficulties
Subjective Norm	(Reflective)	0.93**	0.95**	Most people who are important to you would strongly approve or disapprove of your using when you want to share knowledge you possess
Perceived Behavior Control	(Reflective)	0.94**	0.93**	To you, the control of using would be under your control
		0.94**	0.92**	To you, the control of using would be simply to arrange
Knowledge sharing mechanism selection intention at awareness stage		0.95***	0.97***	How likely is it that you intend to use ___ when you want people to be aware of existence of knowledge (or obtain further knowledge)?
Knowledge sharing mechanism selection intention at awareness stage		0.97***	0.98***	How certain are your plans to use ___ when you want people to be aware of existence of knowledge (or obtain further knowledge)?
Knowledge sharing mechanism selection intention at transfer stage		0.98***	0.98***	How likely is it that you intend to use ___ when you want people to be aware of existence of knowledge (or obtain further knowledge)?
Knowledge sharing mechanism selection intention at transfer stage		0.98***	0.96**	How certain are your plans to use ___ when you want people to be aware of existence of knowledge (or obtain further knowledge)?

2.5.1. Assessment of Reflective Construct Reliability and Validity

The common tests regarding reliability (Hulland, 1999) were performed in terms of internal consistency reliability and indicator reliability. Our reflective indicators show good result in terms of internal consistency reliability and indicator reliability in Table 2-2. To examine factorial validity, we examined convergent validity and discriminant validity, to capture the goodness of fit of the measurement model and look at how well the measurement items relate to the constructs. As for convergent validity, Average Variance Extracted (AVE) measures the amount of variance captured by a latent construct in relation to the variance due to random measurement error. The measures of Reach and Richness did not necessarily co-vary, so they were modeled as formative construct. For the rest of reflective constructs, our results in Table 2-2 satisfy the 'acceptable' threshold: greater than 0.5 (Fornell and Larcker, 1981). In addition, each measurement item was able to load with a significant t-value on its latent construct. The loadings shown in Table 2-1 are highly significant.

For discriminant validity, factor analysis showed appropriate pattern of loadings of items to their respective constructs, and confirmed each set of indicator cleanly load to the construct. We also checked the cross-loadings and found that the loading of an item on its associated construct item is much greater than the loading of another non-construct item on that original construct. In addition, Fornell-Larcker Criterion was validated by checking whether a latent variable better explain the variance of its own indicators than the variance of other latent variables. Table 2-2 shows that all items correlated most strongly with their intended construct/dimension, and the square root of AVE for these constructs was larger than any inter-construct correlations.

Table 2- 2 Reliability and Validity

Construct	Cronbach Alpha	Composite Reliability	AVE	1	2	3	4	5	6	7
Best-practice Newsletter										
1. Perceive Ease of Use	0.66	0.85	0.74	0.86						
2. Subjective Norm	0.79	0.89	0.71	0.37	0.84					
3. Normative Belief	0.81	0.89	0.73	0.38	0.78	0.85				
4. Normative Comply	0.79	0.89	0.71	0.27	0.44	0.43	0.84			
5. Perceived Behavior Control	0.93	0.96	0.88	0.12	0.17	0.34	0.28	0.94		
6. Control Belief	0.86	0.91	0.71	0.18	0.27	0.16	0.14	0.04	0.84	
7. Power Belief	0.80	0.85	0.54	0.31	0.63	0.59	0.33	0.50	0.28	0.73
Transfer of People										
1. Perceive Ease of Use	0.65	0.85	0.74	0.85						
2. Subjective Norm	0.70	0.84	0.64	0.44	0.81					
3. Normative Belief	0.79	0.88	0.72	0.27	0.67	0.85				
4. Normative Comply	0.80	0.89	0.72	0.21	0.40	0.50	0.85			
5. Perceived Behavior Control	0.91	0.94	0.85	0.10	0.18	0.25	0.22	0.92		
6. Control Belief	0.91	0.93	0.73	0.08	0.1	0.01	0.11	0.21	0.85	
7. Power Belief	0.83	0.88	0.59	0.32	0.36	0.33	0.27	0.37	0.07	0.77

^aDiagonal elements are the square root of Average Variance Extracted.

2.5.2. Assessment of Formative Construct Reliability and Validity

Reliability in internal consistency for formative indicators is meaningless as the correlations between formative indicators may be positive, negative or zero (Diamantopoulos and Winklhofer, 2001). Bollen and Lennox (1991) explicitly alerts researchers to not rely on correlation matrices for indicator selection as this might lead to eliminating valid measures. Validity assessment of formative measurement starts with indicator collinearity assessment, which examines the strength of the correlations among the indicators, because the formative measurement model is based on a multiple regression (Diamantopoulos and Winklhofer, 2001). High collinearity indicates that indicators are almost perfect linear combinations of others and contain

redundant information, which implies the need to consider their exclusion. The Variance Inflation Factors (VIF) for each indicator indicate the possible presence of collinearity. Most researchers consider VIFs up to 10 acceptable. VIF values higher than ten indicate excessive multi-collinearity. In this study, most VIFs are less than 5, which strongly indicate that no multi-collinearity problems were found. Since all data are self-reported common method variance may cause systematic measurement error and bias the estimates of true relationship. Harman's one-factor test was conducted to test the presence of common method effect. No general factor is apparent and common method bias is not likely to contaminate our result.

2.5.3. Structural Models

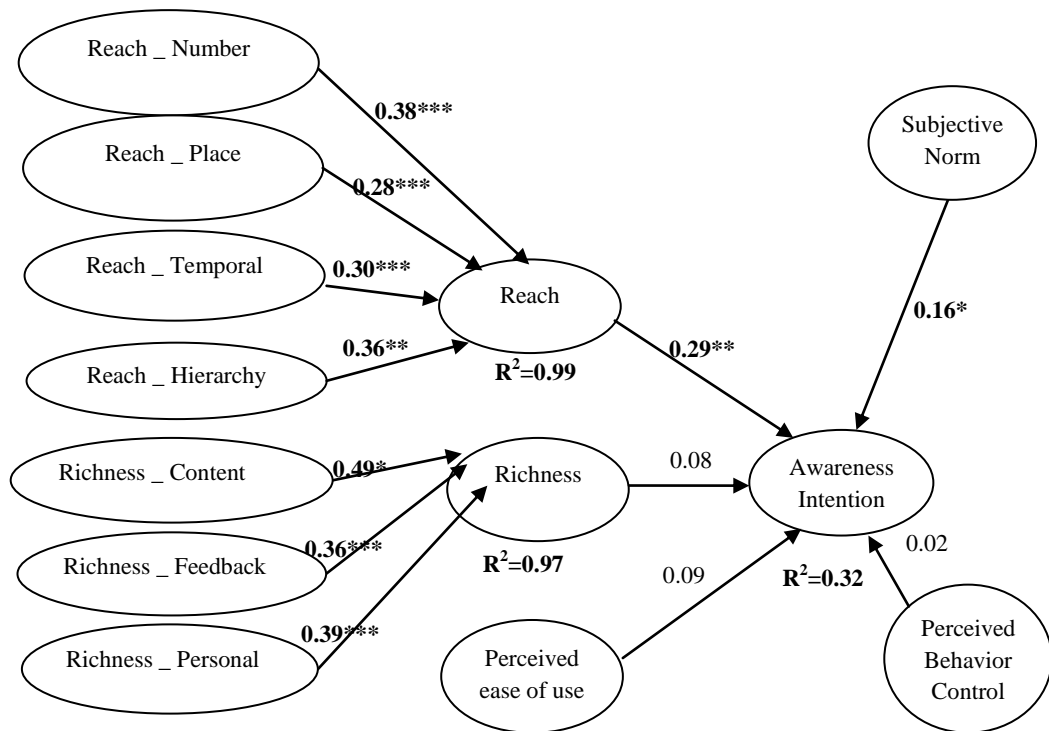
It shows an adequate measurement model (high item reliability, convergent validity and discriminant validity) and an acceptable level of multi-collinearity. The significant levels of the coefficients were generated by a bootstrapping procedure provided by SmartPLS (Gray and Meister, 2004). All statistical tests were assessed using two-tailed t-test.

Figure 2-5 and Figure 2-7 show the path coefficients of direct effects as well as R square for a clearer view of the model results, which represents the variance in the dependent constructs that are explained by the model, hence the larger the better. For the mechanism of best practice newsletter (BPN) in Figure 2-5, the high Reach characteristics significantly and positively predicted the intention towards usage intention (Hypothesis 1). For the mechanism of transfer of people (TOP) in Figure 2-7, the Richness characteristic significantly influences the adoption intention (Hypothesis 2). For the both mechanisms, the perceived ease of use had an insignificant direct effect on the intention to adopt knowledge sharing mechanism (Hypotheses 3a and 3b). For the best practice newsletter, subjective norm is a significant predictor of intention to adopt the mechanism (Hypothesis 4a), while perceived behavior control is insignificant (Hypothesis 5a). For the transfer of people, perceived behavior control demonstrate significant direct effect towards intention to use (Hypothesis 5b), while subjective norm is insignificant (Hypothesis 4b).

In terms of moderating effects, Aguinis et al. (2005) have shown that the average effect size in tests of moderation is only 0.009. A realistic standard for effect sizes is 0.005, 0.01, and 0.025 for small, medium, and large, respectively. As presented in Table 2-3, for the best practice newsletter, subjective norm moderates the relationship from perceived Reach and perceived Richness to the intention to select, in which the effect size of subjective norm * Reach is large (0.06), while subjective norm * Richness is medium (0.017). The overall moderation effects were visualized in Figure 2-6. For both of the paths, when perceived social support is high, the impact of perceived usefulness, reflected by Reach and Richness, is reinforced to affect the intention to select. However, the moderation effects of perceived behavior control were not significant and negligible for the best practice newsletter. For the mechanism of transfer of people in Figure 2-8, all of the moderations hypotheses were not supported.

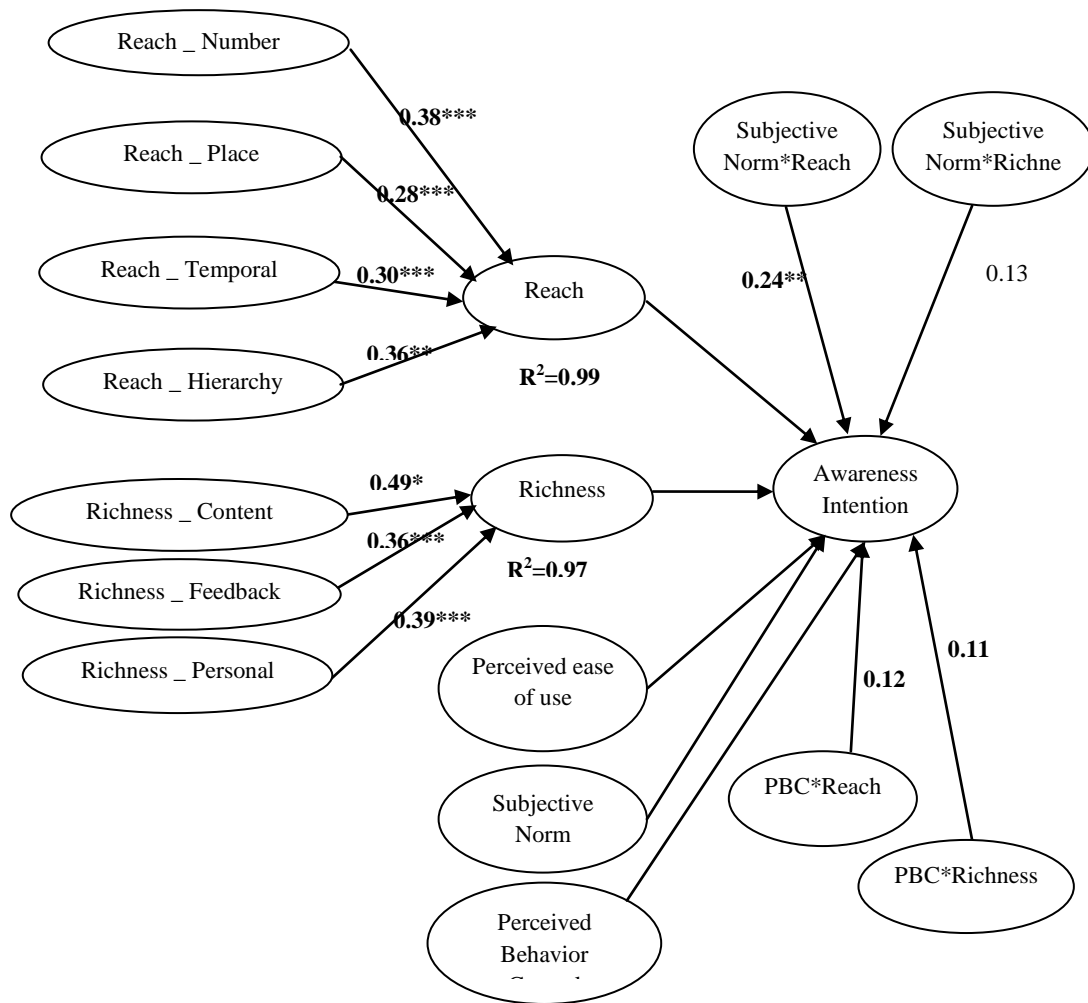
Table 2-3 The Results of Hypothesized Effects

Hypotheses	Results
Best Practice Newsletter (High Reach, Low Richness)	
H1: Perceived Reach → Intention to Select at Awareness Stage over Perceived Richness	Supported
H3a: Perceived Ease of Use → Intention to Select at Awareness Stage	Not Supported
H4a Subjective Norm → Intention to Select at Awareness Stage	Supported
H5a: Perceived Behavior Control → Intention to Select at Awareness Stage	Not Supported
H6a: Subjective Norm*Perceived Reach → Intention to Select at Awareness Stage	Supported
H7a: Subjective Norm*Perceived Richness → Intention to Select at Awareness Stage	Not Supported
H8a: Perceived Behavior Control*Perceived Reach → Intention to Select at Awareness Stage	Not Supported
H9a: Perceived Behavior Control*Perceived Richness → Intention to Select at Awareness Stage	Not Supported
Transfer of People (High Richness, Low Reach)	
H2: Perceived Richness → Intention to Select at Transfer Stage over Perceived Reach	Supported
H3b: Perceived Ease of Use → Intention to Select at Transfer Stage	Not Supported
H4b: Subjective Norm → Intention to Select at Transfer Stage	Not Supported
H5b: Perceived Behavior Control → Intention to Select at Transfer Stage	Supported
H6b: Subjective Norm*Perceived Reach → Intention to Select at Transfer Stage	Not Supported
H7b: Subjective Norm*Perceived Richness → Intention to Select at Transfer Stage	Not Supported
H8b: Perceived Behavior Control*Perceived Reach → Intention to Select at Transfer Stage	Not Supported
H9b: Perceived Behavior Control*Perceived Richness → Intention to Select at Transfer Stage	Not Supported



^a All values are: *, significant at p<0.05; **, significant at p<0.01; ***, significant at p<0.001 in two-tailed tests

Figure 2- 5 Direct Effects of Best Practice Newsletter

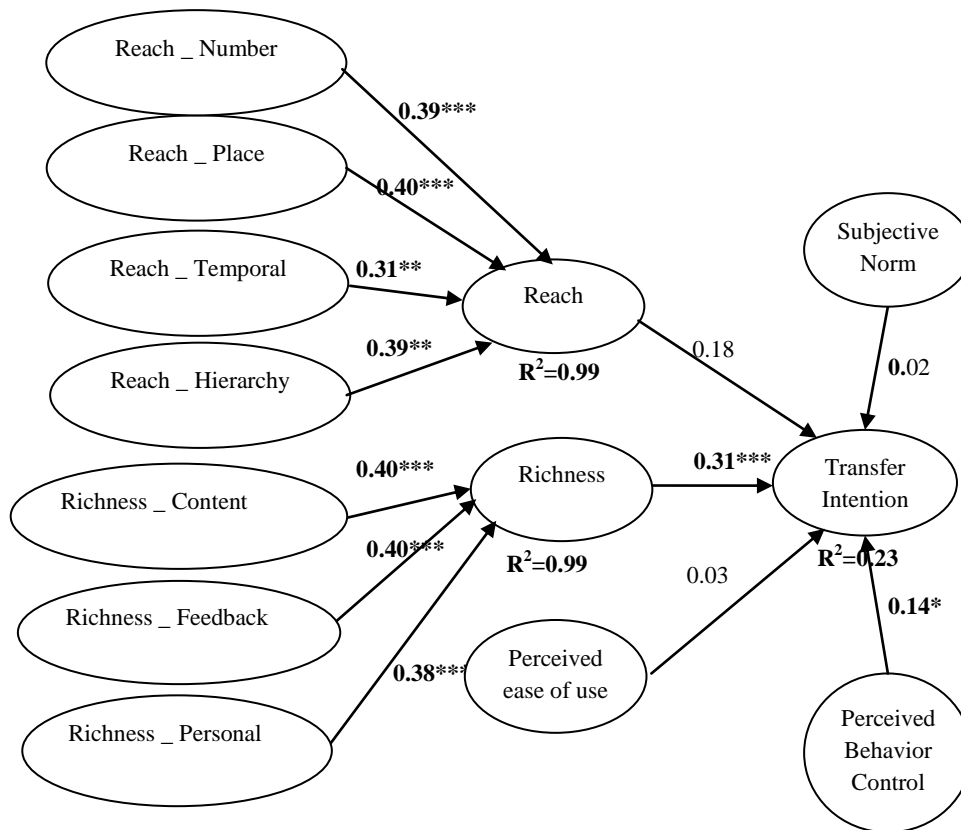


^a All values are: *, significant at $p < 0.05$; **, significant at $p < 0.01$; ***, significant at $p < 0.001$ in two-tailed tests.

^b Only one moderating effect was added into the direct model at each time, and the moderating effects were tested one by one.

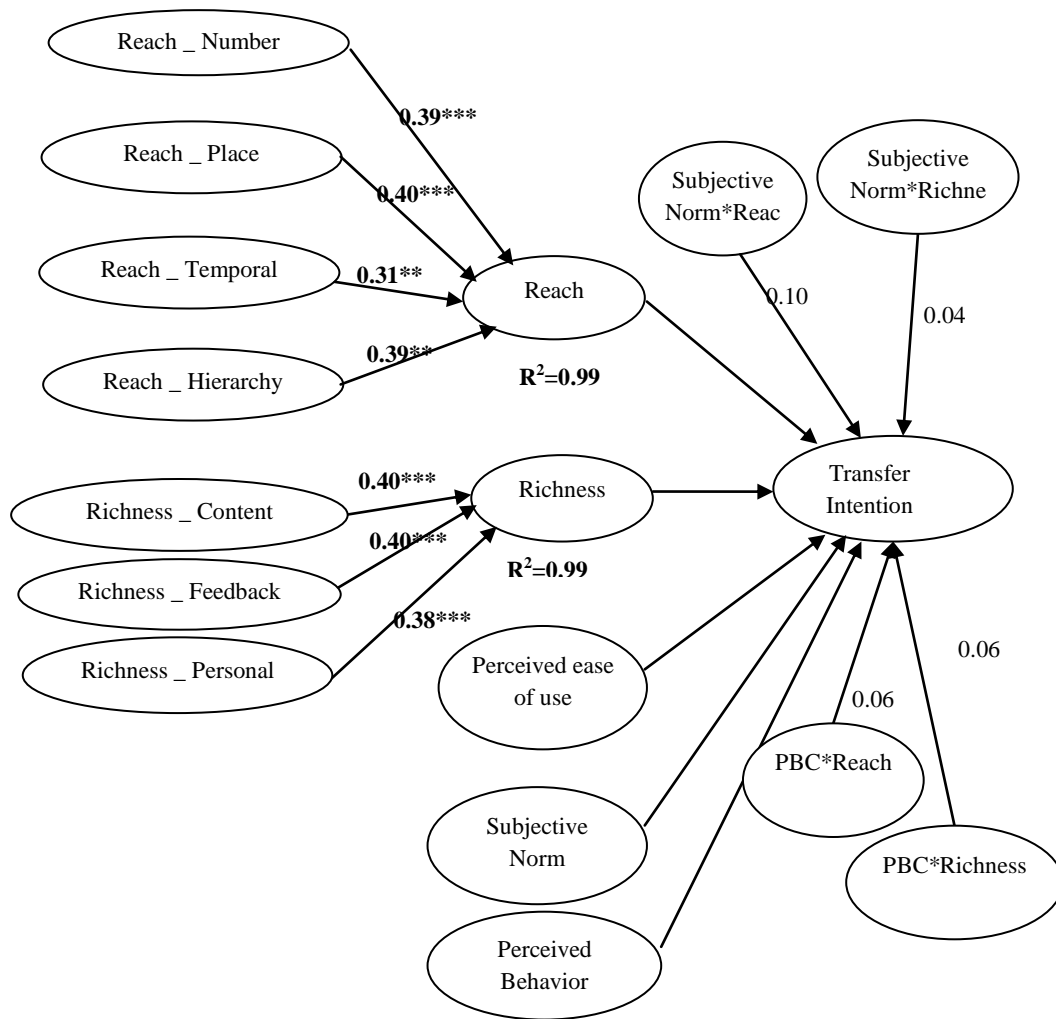
^c The path coefficients of the direct effects were omitted in the graph, and only the path coefficients and the significances of the moderations were presented above.

Figure 2- 6 Moderation Effects of Best Practice Newsletter



^a All values are: *, significant at p<0.05; **, significant at p<0.01; ***, significant at p<0.001 in two-tailed tests.

Figure 2- 7 Direct Effects of Transfer of People



^a All values are: *, significant at p<0.05; **, significant at p<0.01; ***, significant at p<0.001 in two-tailed tests.

^b Only one moderating effect was added into the direct model at each time, and the moderating effects were tested one by one.

^c The path coefficients of the direct effects were omitted in the graph, and only the path coefficients and the significances of the moderations were presented above.

Figure 2- 8 Moderation Effects of Transfer of People

2.5.4. Unsupported Hypotheses

Perceived ease of use showed no significant relationship with knowledge sharing mechanism selection both for the mechanism of best practice newsletter, as well as transfer of people. Perceived ease of use may lose its influences for users with considerable experiences of the mechanisms. The

respondents in this study have considerable prior experiences and exposure using the two knowledge sharing mechanisms. With the relevant using skills and experiences, the respondents in this study may not regard ease of use of the mechanisms as an issue matters.

Subjective norm exhibited no significant relationship with the selection intention towards both the mechanism. Prior research reports inconsistent findings of social support influences (e.g., Davis et al., 1989; Mathieson, 1991; Harrison et al., 1997) which was resulted from the use of respondents, such as students. For example, students' perceptions were unduly influenced by peers or professors (Taylor and Todd, 1995). In this study, although our respondents are part-time students in university, they are professionals with specialized training, practice and experiences in their own domain, and relatively less weight on others' opinions (Chau and Hu, 2001), as compared with student subjects used in prior studies. Moreover, as users gain experiences with the knowledge sharing mechanism, the effects of social influences could be overridden by users' experiences (Hartwick and Barki, 1994).

The perceived behavior control has no significant influence on the selection intention towards the mechanism of best practice newsletter. This finding may be, in part, explained by the convenience access of the mechanism of best practice newsletter in organizations. The electronic best practice newsletter was with a reasonable access and user support in organizations. Thus, in this study, the resource issue may not represent central concerns to the use of the mechanism. Further, the relationship of perceived Reach and perceived Richness and knowledge sharing mechanism selection did not appear to depend on perceived behavior controls, both for the mechanism of best practice newsletter and transfer of people. Again, the respondents experience using the two knowledge sharing mechanisms may enable them to concentrate on the perceived usefulness of the knowledge sharing mechanisms, regardless of concerns about external and internal resources for using the mechanisms.

2.6. Discussion and Conclusion

Our research objective was to provide an integrative and in-depth understanding of knowledge sharing mechanism selection. The empirical work has been done to provide support to the effects of technical characteristics, subjective norm, facilitating conditions as well as their interactions. Also, this study was designed to offer concrete suggestions for practitioners, managers and knowledge workers to select appropriate mechanisms in the process of knowledge sharing. Knowledge-intensive industries are the most impacted ones to which proper match of knowledge sharing mechanism is critical. For knowledge intensive industries, knowledge sharing performance has great impact on their business success as well as competitive advantages. According to the OECD's definition, there are two types of knowledge-intensive industries, which were heavily influenced by knowledge sharing effectiveness. The first type is high-tech industrial companies in the manufacturing sector, which include the electronic, aerospace, and biotechnology industries. The second type is knowledge-intensive services, which include education, communications, financial and information service industries (Liao et al. 2007). In this study, we focus on generic knowledge sharing behavior happening in day-to-day working environment, including but not limited to exchange of information and problem solving through specific knowledge sharing mechanisms.

First of all, the capabilities of knowledge sharing mechanism go beyond the general items that measure perceived usefulness and perceived ease of use. It was difficult to identify the reasons behind the perceived ease of use or perceived usefulness variables due to the lack of adequate specification. This study specified the perceived usefulness into Reach and Richness and drilled down the dimensions of knowledge sharing mechanism characteristics. The impact of perceived usefulness was differentiated across knowledge sharing stages, between awareness stage and transfer stage. Perceived Reach is more salient at the awareness stage in comparison with perceived Richness, while perceived Richness is more preferred at the transfer stage over perceived Reach.

This effort of specifying perceived usefulness contributes to the theorization of knowledge sharing mechanism capabilities. In addition to the well-recognized characteristic of mechanism Richness, another useful characteristic to characterize knowledge mechanisms is Reach. The discussion on knowledge management has often centered on the need to have rich medium for knowledge transfer, especially those that are tacit in nature (e.g., De Long and Seemann, 2000; Chai et al., 2003). The notion of Reach completes the effect of Richness on knowledge sharing mechanism selection in that it explains why some mechanisms are more preferred in creating awareness but not in transferring the knowledge, and vice versa. This is an important contribution as thus far to understand how knowledge awareness can be facilitated using knowledge sharing mechanism. Further, after refining the questionnaire items, we achieved a valid and verifiable way of measuring the Reach and the Richness of two exemplary knowledge sharing mechanisms, best practice newsletter and transfer of people. The results of our data analysis provide strong support for the measurement properties and usefulness of our instrument.

Secondly, to our knowledge, there is limited research in the knowledge management implementation literature that aids such managerial decision making of knowledge sharing mechanism deployment. Particularly, there is a need to understand the effects of the known determinants of knowledge sharing mechanism adoption and use. Identification of contingencies on which technical characteristics hold contributes to technology routinization, and indicates the possibility to push the boundaries forward by putting proper organizational intervention.

Thirdly, in this study, we chose two mechanisms, namely with either high reach or high richness, to test the prominent causal relationship in each of knowledge sharing stage. However, it does not limit the study into the investigated mechanisms, either high in Reach or high in Richness. For example, a webinar as a specific type of web conference could be collaborative and allow full participation and interaction between the audience and the presenter. Up to the point, web seminar may alter the reach-richness curve so as to allow the creation of mechanism high in reach and richness at

the same, but it does not alter the proposition that a reach medium is good for awareness, and a rich medium is good for transfer.

In sum, this study proposes a knowledge sharing mechanism adoption model which describes a concrete set of factors to facilitate knowledge sharing. It gives clear and concrete recommendations to managers on how to design their knowledge sharing mechanism portfolio. To boost bottom-up knowledge sharing, organizations need to ensure that their knowledge sharing mechanisms have high degrees of Reach or Richness properly. Mechanisms which have high degree of Reach help members in the organization know the presence and location of useful knowledge which can be reused. Mechanisms with high degree of Richness will enable members in the organization to transfer knowledge effectively.

This study also sheds some light on what interventions management should put in place to foster the mechanism adoption. The results show that social influences affect the intention to select indirectly. Specifically, subjective norm intensifies the relationship between perceived usefulness and intention to use, although they only partially hold for the mechanism of high Reach, the best practice newsletter. It also recommends that managers should improve social support over the knowledge sharing mechanism so as to increase the power of mechanism usefulness. Overall, this study represents a systematic approach to understanding and predicting knowledge sharing mechanism selection behavior within an integrative model.

Chapter 3

A Cognitive-affective Approach: Towards a Balanced View of Knowledge Sharing Needs on Social Media

3.1. Introduction

In the first study, the determinants of knowledge sharing mechanism selection behavior, as well as the contingency effects influenced by social norm and behavior control, are identified and examined. The first study focuses on the knowledge sharing mechanisms commonly used in organizational settings, from the best practice guidelines to the transfer of experts. However, as shown in the story at the start of the thesis introduction (Chapter 1), the knowledge sharing mechanism portfolio is always expanding, due to information technology advancements and the continuous improvement of knowledge management practices. Today, social media is prominent as an effective communication tool, helping companies be aware of customers' needs, fostering marketing endeavors, and soliciting sales leads (e.g., Evans, 2012). However, as social media is still a new tool of knowledge sharing, its characteristics, and roles that it plays in knowledge sharing, are yet to be investigated.

Social media is now one of the most promising innovation for knowledge sharing (Koster and Van Gaalen, 2010). However, views on what roles social media plays in knowledge sharing are obscure. Although IT gurus are aware of the potential of social media to alter the process by which people exchange information on an open, ever-evolving and infinite virtual platform (e.g., McAfee, 2006), there is a conspicuous lack of understanding of the capabilities of social media. Increasing this understanding would establish a knowledge base for enhancing knowledge contribution and knowledge seeking. The key is to explicate the characteristics of social media, and their interaction relationships with knowledge sharing needs.

In this study, a cognitive-affective approach is adopted to combine the rational and emotional needs of knowledge users into a unified view, to create

a greater understanding of how knowledge sharing is motivated and facilitated. Most studies do not cover the emotional components which are critical to the decision making regarding online knowledge sharing, with a few exceptions recognizing the emotional motivation (e.g., affective-trust, altruism, enjoyment) (e.g., Wasko and Faraj, 2005; Kankanhalli et al., 2005a; Chiu et al., 2006). Few works explicitly unify the emotional and cognitive needs into a holistic view.

To relate social media capabilities to knowledge sharing activities, we explicate the contingencies when knowledge sharing needs (cognitive and emotional) are addressed by technical capabilities. This approach is different from those applied in previous studies that examine technical contingencies for online sharing participation. Most of them, if not all, regard technical characteristics as antecedents of online knowledge sharing participation (e.g., Ling et al., 2005; Phang et al., 2009), and few prior efforts advance the understanding by examining an interaction between technical characteristics and motivational factors. Ling et al. (2005) suggested that making users' contributions visible and identifiable helps motivate knowledge contributors to keep sharing valuable expertise with the online community. As most of the other researchers, they did not investigate closely the contingencies enabled by technical characteristics.

We look at the knowledge sharing needs and contingency effects from both knowledge contribution and knowledge seeking perspective. Although a user can be a contributor or a seeker, the needs driving knowledge contribution are different from those encouraging knowledge seeking. In this chapter, we reviewed the established theoretical foundations from two sides, knowledge contribution and knowledge seeking. First, we identified the key characteristics of social media, namely transparency, interactivity, networking facility and content integration in Section 3.2 and Section 3.3. Drawing upon social exchange theory, the four characteristics are related to knowledge contribution and knowledge seeking to different degrees. Transparency and interactivity are relevant to knowledge contribution, while transparency, networking facility and content integration are relevant to knowledge seeking. In Section 3.4 and Section 3.5, we surveyed literature of online knowledge

sharing from knowledge contribution and knowledge seeking perspective, respectively. In Section 3.6, a set of needs salient in knowledge contribution were differentiated from the set of knowledge seeking needs. Finally, we achieved a cognitive-affective categorization of knowledge sharing needs and resolved the conflicts prevalent in prior literature.

3.2. Social Media Landscape

Today, the trend of Web 2.0 comes with remedies of web applications good at bearing interactive communication, encouraging user-centered information sharing and sustaining transparent social interactions and constant community involvement. There is a rich and diverse spectrum of social media sites, applications and platforms (Kietzmann et al., 2011). In general, according to Agarwal et al. (2008), social media can be classified in terms of functionality into six categories: (1) blogs, (2) wikis, (3) media sharing, (4) social bookmarking, (5) social network service, and (6) micro blogging. Thus, the definition of social media can be confusing. To be concrete, we adopt the view by Kaplan and Haenlein (2010)— social media is a group of internet-based applications and allow the creation and exchange of user generated content. As a new medium for knowledge sharing, Social Networking Services (SNSs) are emerging to be one of the most attractive social media applications. In this and the two following chapters (Chapter 4 and Chapter 5), the research subject of social media is confined to the applications of social networking services (e.g., Facebook, LinkedIn, Weibo.com).

With proliferation of social media around the internet, organizations are seeking to tap into the online interactive platform for every possible business potential these sites offer, like advertising, marketing, branding, customer relationship management, public relationship development, to name a few (e.g., Evans, 2012). However, as far as we know, there is not that much work focusing on how social media can be used to enhance knowledge sharing performance (Paroutis and Al Saleh, 2009).

Knowledge sharing using social media is distinct from that through traditional knowledge sharing mechanisms. Certainly, finding more

information and connecting with more people, knowledge workers are empowered with higher possibility to be able to reach out to what interests them. Traditional knowledge sharing mechanism within organization is built upon more immediate or tangible incentive for knowledge workers to contribute key know-how. With the expectation of reward, knowledge contributor gets economic or social benefits in return, once the knowledge is received or used by the recipient. Israel (2009), a social media expert and author, found information contributors offer their advice and guidance, and must prove its usefulness before the recipient acceptance. Before we figure out how social media facilitates knowledge sharing, it is necessary to look through the key capabilities and characteristics enabled by social media.

3.3. Social Media Characteristics

As discussed earlier, Social Networking Services (SNSs) is studied in this research as a representative of social media. We adopted a functional definition of SNSs (Ellison, 2007) –“that is, social network sites as web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system”. The functions of SNSs may vary from site to site. However, in general, SNSs can produce: (1) transparency, online participant sees more information about her counterpart in a conversation, in the meanwhile, her profile is also transparent to others of interest; (2) introduction mechanism, peer-to-peer conversations will help establish relationships impossible previously; (3) real relationships, social networking allows people to help others solve real problems; (4) timely manner, social technologies enable real-time contact. Among all of the features listed, four characteristics are prominent, namely transparency, interactivity, networking facility and content integration (Parameswaran and Whinston, 2007; Boyd, 2008; Agarwal, 2009; Dalsgaard and Paulsen, 2009), as shown in Table 3-1.

Table 3- 1 Literature of Social Media Characteristics

Characteristics	Description	Literature Sources
Transparency	Transparency is the extent to which user believes that the social media is able to provide accurate and reliable information about the past behavior of all users.	Agarwal, 2009; Parameswaran, 2007; Dalsgaard and Paulsen, 2009; Boyd, 2008
Interactivity	The capabilities to enable dyadic instant communication, group interaction, social connections and immediate feedback construct the integral to interactivity of social media.	Agarwal, 2009; Parameswaran, 2007; Dalsgaard and Paulsen, 2009; Boyd, 2008
Networking Facility	It consists of all functionalities that enable the maintenance of personal network, including the awareness of the activities and the common context.	Agarwal, 2009; Parameswaran, 2007; Dalsgaard and Paulsen, 2009; Boyd, 2008
Content Integration	Content and information are interrelated and will be pushed to exact the person of interest.	Agarwal, 2009; Parameswaran, 2007; Fu, 2009; Boyd, 2008

Transparency is the key word to describe communication, construction of network, and collaboration on SNSs-that are giving users insight into each other's personal information (profile), social network (friend list) and past behaviors (comments, topics of interest). In the context of SNSs, the transparency is defined as the extent to which a member believes that the social media is capable of providing comprehensive and reliable information about the current and past behavior of all members. Transparency provides a good measure of members' past behavior within the social media in terms of the personal profile, past behavior records, past review and reputation system.

Transparency is highly related to knowledge contribution. Social exchange studies confirm that one potential way an individual can benefit from active participation in knowledge sharing is the perception that participation enhances his or her social status, reputation and approval (e.g., Ardichvili et al., 2003; Teigland and Wasko, 2003; Wang and Noe, 2010). If there is a high visibility of status within the organization, then people with strong social motive is more likely to be willing to share. As a result,

transparency reduces low quality contributions. In transparent online networking environments, poor contributions from knowledge source cannot be hidden easily (Dalsgaard and Paulsen, 2009). Thus, given higher transparency, it is more likely knowledge source will contribute knowledge in high quality. In addition, social media displays friends list and shared connections, which create social precondition for interpersonal interaction. A person is less willing to share knowledge when he gets a cold call from someone he has not met before. However, the perception “friends of my friends are my friends” could form the basis for trusting another person.

On the other hand, for knowledge seeker, transparency also helps to save the coordination cost of information resources, efforts to discriminate among knowledge available on social media based on past comments and review. For example, a knowledge seeker is able to identify others in the systems with whom they have a relationship or share a common contact. It is of higher chance that a knowledge seeker will get connected with information sources no matter if he or she is within seeker’s first degree network or extended network. Furthermore, knowledge seekers can judge the quality of the knowledge by viewing other’s reviews and comments. Thus, knowledge seeker will be more likely to take in and accept the knowledge being transferred.

Interactivity is developed based on a conventional useful construct for mapping out computer-mediated communication by adding new dimensions enabled by SNSs (Rafaeli, 1988). Researchers take different perspectives — related to feature, process, or perception — to define interactivity (McMillan and Hwang, 2002). But because this study focuses on SNSs’ capabilities, we adopt the feature perspective to define interactivity. Interactivity refers to characteristics of social media that support sociable environment where users are pleasant to interact with each other (Hoffman and Novak, 1996; Preece, 2000; 2001). The capabilities to enable dyadic instant communication, group interaction, social connections and immediate feedback constitute the integral part to interactivity of social media.

A certain level of interactivity during communication can satisfy that specific need and motivate people to communicate with others actively (Rafaeli and Sudweeks, 1997). However, interactivity may have a relative different significance to knowledge contributor, compared to knowledge seeker. Prior research (e.g., Phang et al., 2009) on online knowledge sharing behavior has indicated that when individuals need to obtain knowledge, they are more concerned about the quality and reliability of the information versus whether the medium is conducive for social interaction. In contrast, knowledge contributor will rely on interactivity more than knowledge seeker, because prior research has identified the desire for social interaction as a key driver to contribute knowledge in online communities (Wasko and Faraj, 2000).

Networking Facility. Social media have flattened the world and altered the understanding of what constitutes a social network because they have attracted millions of users, who integrate this activity into their daily life (Li et al., 2007). The social network is composed of user profiles and links between users. SNSs' networking facility enables the maintenance of personal network and be aware of the activities of the contacts in the personal network.

Content Integration. Social networking services can be interpreted as a comprehensive platform used in daily business. Information and knowledge from other social media applications can be naturally integrated into daily routine, if knowledge workers tag and categorize project information into Wiki, post status report and minutes on the Blog, keep members updated via Microblog, initiate discussion on forum, and decide what information is important via RSS. Content and information are interrelated and will be pushed to the exact person of interest.

The four characteristics exhibit different relative importance to knowledge contributor and knowledge seeker as summarized in Table 3-2. There are two characteristics highly relevant to knowledge contribution by satisfying contributor's needs, namely transparency and interactivity. However, transparency, networking facility and content integration are highly relevant to knowledge seeking. The differences are rooted from the nature of knowledge

seeking and contribution behavior. Knowledge seeking via an online community or through electronic system includes searching or browsing the forum, discussion, information to locate knowledge, to identifying qualified knowledge source, and formulating specific queries (Cool and Xie, 2000; Phang et al., 2009). Thus, the networking facility and content integration which bring potential qualified information sources will be so meaningful that knowledge seekers can reduce the searching cost, either for searching people or information, or for finalizing the seeking with controllable cognitive effort. In contrast, knowledge contribution through online community typically is more straightforward than seeking, and the interactions with electronic systems are not that complex and difficult. Thus, for knowledge contributor, the last two characteristics are not as important as they do to knowledge seeker.

The explanations of why knowledge contributor and seeker value characteristics of SNSs differently can be taken through the lenses of value theory and social exchange theory. Value theory states that different individuals attach different value to an object based on how it can satisfy their needs (Harper, 1974). The same characteristics may be judged as relatively more important by knowledge contributor than knowledge seeker, and vice versa. Thus, proper understanding towards knowledge contributor's (or seeker's) needs is integral to make a clear mapping of relative importance of SNSs' characteristics. In the following sections, we will reach a unified view to see how knowledge sharing is motivated and facilitated on social media context. In another word, looking through motivational factors, the needs of knowledge contributor and knowledge seeker will be manifested.

Table 3- 2 Relevance to Contribution and Seeking

Technical Characteristics	Highlighted Features	Related to Knowledge Contribution or Seeking
Transparency	Authentication of Users Profile	Contribution and Seeking
	Visibility of Profile	
	Transparent Review or Comment	
	Transverse of Shared Connection	
Interactivity	Real-time Communication Channel	Contribution
	Immediate Feedback	
Networking Facility	Alert of Update	Seeking
	Connection Recommendation	
Content Integration	Content With-In-Site	Seeking
	Connectivity	
	Content Between-Site Integration	

3.4. Factors Affecting Online Knowledge Contribution

There has been little research, with few exceptions (e.g., He and Wei, 2009), investigating knowledge contributing and seeking perspectives systematically. The literature has shown that different needs are associated with these two types of behaviors in knowledge management systems (Kankanhalli et al., 2005; Kankanhalli et al., 2005; Watson and Hewett, 2006). Thus, an adequate emphasis on their variances is reasonable when we explore knowledge sharing in social media context.

Although knowledge contribution and knowledge seeking are two distinct types of behaviors, they are closely interrelated and inseparable with each other (Watson and Hewett, 2006). Knowledge contribution on social media refers to the codification and distribution of existing knowledge into social media repositories on a continued basis, and enables a potential of knowledge to be accessed and used again by other individuals within contributor’s online social network. Knowledge seeking is taken to mean individual using social media to retrieve knowledge generated by a different individual or group within one’s social network in order to be more effective and productive in their work (Watson and Hewett, 2006). Knowledge contribution will ensure an adequate knowledge base while seeking will keep an active continuance participation (He and Wei, 2009). Thus, we surveyed online knowledge

sharing literature in line with the set of theories-that are social capital and social cognitive theories.

3.4.1. Lens of Social Capital Theory

Social capital broadly refers to the resources accumulated through the relationships among people (Coleman, 1988). The Social Capital Theory (SCT) suggests that the set of resources embedded within social network of an individual strongly influence the extent to which interpersonal knowledge sharing occurs (Nahapiet and Ghoshal, 1998). Alternatively, bonding social capital is found between individuals in tightly-knit, emotionally close relationships, such as family and close friends. Based on our understanding of social network that is prevalent on social media, social capital embedded in social media has a foot in both camps. Not only was the social network an online version of offline social network connected by close relationships, but also it accommodates extended connections which are relatively looser but innovative. Thus, both bonding and bridging social capital are mixed in social network on social media so that we just concentrate on the decomposition of social capital, rather than differentiate it by nature.

Furthermore, prior research empirically justified how social capital facilitates knowledge contribution within the professional community settings (e.g., Bock et al. 2005; Chiu et al. 2006), while social media differ notably from community settings due to the lack of aligned and shared purpose. Consequently, we are interested in whether the impact of social capital found in virtual community settings could be generalized to social media context. Also, members in social media differ from those in formally supported online community in that social media participants are brought together either by offline close relationships or by shared goals.

There are some social capital factors with recursive appearance in online knowledge contribution literature. **Reputation attainment** is the perception of increase in positive reputation (Kankanhalli et al., 2005), which is a strong motivator for active participation in electronic networks of practice (Smith, 1999).

Reciprocity expectation is the benefit expectancy of a future request for knowledge being met in return for the current contribution (Kankanhalli et al., 2005). There is evidence that people who share knowledge in online communities believe in reciprocity (Wasko and Faraj, 2000). **Trust** has been recognized as an important antecedent of knowledge sharing in virtual communities (Ridings et al., 2002). Nahapiet and Ghoshal (1998) suggested that when trust exists between the parties, they are more willing to engage in cooperative interaction. Nonaka (1994) indicated that inter-personal trust is important in teams and organizations for creating an atmosphere for knowledge sharing. **Community Identity** refers to an individual's sense of belonging and positive feeling toward a virtual community (Ellemers et al., 1999).

However, social capital research is mainly built upon rationalism without explicitly taking emotional factors into consideration, except for trust. Notably, social capital researchers have found that some forms of social capital are related to emotional facets including indices of psychological concern, such as self-esteem and satisfaction (Bargh and McKenna, 2004; Helliwell and Putnam, 2004). However, it is yet to develop a comprehensive categorization to address the emotional concern which accounts for the salient factors towards knowledge contribution willingness. For example, **enjoyment** in helping others is defined as the perception of pleasure obtained from helping others through knowledge contribution (Kankanhalli et al., 2005). In turn, enjoyment in helping others can significantly impact the knowledge contribution willingness (Kankanhalli et al., 2005).

3.4.2. Lens of Social Cognitive Theory

According to social cognitive theory, two types of cognitive beliefs guides behavior: outcome expectations and self-efficacy. Self-efficacy is defined as the judgment of one's ability to use a technology to accomplish a particular job (Compeau and Higgins, 1995). It is highly related to efforts associated with the knowledge contribution behavior, in terms of time and effort required (Kankanhalli et al., 2005). Thus, we consider **Effort Concern** accounts to be the self-cognition towards the knowledge contribution willingness.

Outcome expectation can be manifested by personal expectation or community-related expectation. In line with Butler and Sproull (2002), self-worth is positively related to knowledge contribution willingness. In social media context, the primary reason for individual to gather is to engage in social interaction with others, with the lack of specific and clear goals to improve community's knowledge base. Thus, we only take personal expectation manifested as **Self-worth** into consideration.

However, it is obvious that most social cognitive research is based on rational choice assumptions. Thus, affective side of individual cognition towards intrinsic belief like altruism and psychological safety were not accounted by most exemplary research, if not all, such as Chiu et al. (2006). Thus, to complete the view, we take individual's moral belief (i.e., altruism) and emotional psychological needs (e.g., safety and privacy concern) into consideration. In Table 3-3, we identified some exemplary literature from these two theoretical lenses. While prior literature presented a large number of potentially interesting factors to predict knowledge contribution, there are few efforts dedicated to draw one complete and integrated view of these factors. In Table 3-4, we further reorganize these explanatory factors and sort out the recurring factors based on their common meaning.

Table 3- 3 Exemplary Literature from the Two Lenses

Study	Lenses of Theories	Explanatory beliefs
Bock et al. 2005	Social Capital Theory	reciprocal relationships
Chiu et al. 2006	Social Capital Theory	social ties; trust; norm of reciprocity; identification
Hsu et al. 2007	Social Cognitive Theory	trust; self-efficacy; personal outcome expectation
Kankanhalli et al. 2005a	Social Cognitive Theory	codification effort; enjoyment in helping others; organizational reward; reciprocity; self-efficacy
Wasko and Faraj 2000	Social Capital Theory	community interest; generalized reciprocity
Wasko and Faraj 2005	Social Capital Theory	Reputation

Table 3- 4 Recurring Factors in Prior Literature

Concept	Factors	Definition	Literature
Self-worth	Sense of self-worth	Based largely on competence, power, or efficacy	Bock et al. 2005
	Knowledge self-efficacy	One's belief that he can help to solve problems	Kankanhalli et al. 2005a
	Enhancement	Self-actualization	Wasko and Faraj 2005
Reputation	Image	Positive reputation of possessing valuable expertise	Kankanhalli et al. 2005a
Attainment	Reputation	As an expert	Ardichvili et al. 2003
	Reputation	Status in community	Wasko and Faraj 2005
Altruism	Moral obligation	Belief that helping others is part of being a member	Wasko and Faraj 2005
	Moral obligation	Obligation to contribute to the organization	Ardichvili et al. 2003
	Value	Altruistic and humanitarian concerns for others	Bock et al. 2005
Community Identity	Community interest	Maintain and advance community	Ardichvili et al. 2003
	Commitment to community	A sense of responsibility to help others on the basis of shared membership	Wasko and Faraj 2005
Reciprocity	Reciprocity	Expect future help from others	Kankanhalli et al. 2005a
	Reciprocity	Favors given will be received in the future	Wasko and Faraj 2005
	Anticipated reciprocal relationships	Desire to maintain ongoing relationships with others, especially with regard to knowledge contribution and seeking	Bock et al. 2005
Enjoyment	Enjoyment	Intrinsic enjoyment from helping others without expecting anything in return	Kankanhalli et al. 2005a
	Enjoyment	Intrinsic reward	Wasko and Faraj 2005

3.5. Factors Affecting Online Knowledge Seeking

3.5.1. Social Capital Theory

In line with prior sections on knowledge contribution, we stick to Nahapiet and Ghoshal (1998)'s definition to sort out social capital for knowledge seeker. Structural capital is the connections between actors and interpersonal configurations of linkage among people in the network. It is thus presented in terms of information connectivity and access to information provider-that is, "who you reach and how you reach them" (Burt, 1992). Cognitive capital can be thought of as a protocol that is implicitly premised to maintain and manage the relational network in terms of shared norms and value perception (Arrow, 1972). The social norm within a community towards new information or expertise can either be receptive or reluctant to accept 'not-invented-here'

knowledge. Relational capital represents personal relationships people developed over time through interactions, which is usually manifested in the form of trust (Granovetter, 1992).

3.5.2. Social Cognitive Theory

Knowledge seeker's cognitive concern represents his expectation and belief on self-knowledge growth, effort saving and psychological safety. Another important benefit of knowledge seeking is knowledge growth (Hall, 2001). Furthermore, seeking knowledge or help from others often implies his lack of expertise towards problems yet to solve. Knowledge seeker would not admit his weakness unless he feels safe and comfortable when turning to someone for help. Finally, to reach a comprehensive view, we summarized factors affecting knowledge contribution and seeking behavior from literature relying on these two theoretical lenses into Table 3-5.

Table 3- 5 Exemplar Research of Knowledge Contribution and Seeking

Authors	Explanatory Factors	Lens of Theories	Research Settings
Bock et al., 2006	Effort, value, access, seeker knowledge growth, resource facilitating conditions, social norms, self-efficacy	Socio-technical perspective Social cognitive theory	EKR knowledge seeking
Borgatti & Cross, 2003	Cost, value, access, knowing	Social cognitive theory Social capital theory	knowledge seeking
Cabrera et al., 2006	Value, access, seeker knowledge growth, resource facilitating conditions, social norms, self-efficacy	Social cognitive theory Social capital theory Socio-technical perspective	Knowledge contribution and knowledge seeking
Cross & Sproull, 2004	Value, access	Social capital theory	Knowledge seeking
Gray & Meister, 2004	Access, seeker knowledge growth	Social cognitive theory Social capital theory	Knowledge sourcing
Hansen, 1999	Access, knowing, reciprocity	Social capital theory	knowledge sharing
He & Wei, 2009	Value, seeker knowledge growth, resource facilitating conditions, reciprocity	Social cognitive theory Social capital theory	Knowledge contribution and knowledge seeking
Kraaijenbrink, 2006	Value, access, knowing, usage	Social capital theory	Knowledge seeking

3.6. To Fill in the Gap and Remedy the Conflicts: A Balanced Cognitive-Affective Framework

In social media context, it is necessary to be aware of applicability and distinction of prior literature before drawing upon those views. For example, Wasko and Faraj (2005) and Brown and Duguid (2000) focused on networks of practice, and Bock et al. (2005) and Chiu et al. (2006) focused on communities of practice and virtual community. Communities of practice are based on internal associations of colleagues within organizational boundary, and networks of practice are viewed as more external associations with fewer and looser points of commonality.

Social media shares some key features as networks of practice, in terms of open participation on a voluntary and self-organized basis, but, the primary purpose and drivers for people to participate in social media is different from those for virtual communities. Virtual communities, e.g., open source development community, no matter whether they are supported by formal organization or not, are online social networks in which people with clear and specific goals, common interests, goals, or practices interact to share information and knowledge (Chiu et al., 2006). Individuals participate in virtual communities, especially in virtual communities related to their profession, for seeking knowledge to resolve problems at work (Chiu et al., 2006). Thus, virtual communities are connected by ties aroused from shared interest, shared goals and shared languages. However, social media is like an online version of one's offline social network (Ellison, 2007), with the extension of connecting with expanded social network. People who are connected may not be driven by immediate instrumental needs, but primarily by engagement in social interactions. Knowledge sharing will be on a continued basis accompanied by and embedded in daily social interaction. Instrumental and immediate benefits of knowledge sharing are derivatives from such social interactions, which will be more likely to realize, given pre-existence of trust, social interaction and emotional sympathy.

Therefore, when investigating knowledge sharing willingness in social media context, it might be problematic to rely on the assumptions of rational

choice, both for knowledge contributors and knowledge seekers. If we critically look through prior literature on knowledge sharing in virtual community, it is not difficult to find out that rationalism is pervasive and accounts for majority of studies. Although most of these studies acknowledged that these factors affect an individual's behavioral pattern by influencing people's aspirations, self-efficacy beliefs, personal standards and emotional states (Wood et al., 1989), to our knowledge, it is not prevalent that studies explicitly manifest the effects of emotional factors with few exceptions (e.g., Wasko and Faraj, 2000). For social media research, affective dimensions are pivotal to knowledge sharing willingness with more weight, as compared to prior virtual community research.

In sum, identifying the motivations in social media would help us gain insights into how to stimulate knowledge sharing in social media. However, parallel and sometimes confusing theoretical conceptualization, conflicts of empirical findings and underestimated importance of emotion exist over online knowledge sharing literature drawing upon social capital and social cognitive theories. We need to take a holistic cognitive-affective view of prior literature because of the heterogeneity embedded in the social media context.

Theories relying on rational choice model (e.g., social capital theory, social exchange theory, social cognitive theory) postulate that motivation is goal-directed, that is, individual motivation can best be explained in terms of an individual's attempt to achieve certain personal goals. However, the motivation to maximize self-interest does not adequately explain why people contribute knowledge to public community when it is not rational to do so. People often behave altruistically and pro-socially, contributing to the welfare of others without apparent compensation. Thus, affective consideration is indispensable and helpful to analyze the issue. Individual behavior can be also explained by an individual's reaction to his or her affective or emotional state. Furthermore, individuals seek to achieve a positive affective state and avoid a negative affective state. For example, for knowledge contributor, only when the atmosphere he perceived is safe in terms of tolerant of making mistake, would he feel comfortable to express his idea and engage in problem solving with unknown outcome. Similarly, for the knowledge seeker, it is not easy for

people to admit his weakness to others unless he trusts the knowledge holder, or getting influenced by a receptive atmosphere in the online community.

Social media is a group phenomenon where individual's behavior will be influenced by one's perceptions of himself as well as by others in his social network. The connections underpinning social network on social media are often featured by affectivity components. Thus, in addition to emphasizing on individual' rational consideration, affective needs should be taken into consideration in a holistic view. It is the rational and emotional perception towards the situations and group atmosphere that drives an individual to make a sharing or seeking choice. Thus, we categorize factors affecting knowledge contribution and knowledge seeking reviewed in prior sections into cognitive and affective needs in Table 3-6.

Table 3- 6 Cognitive and Affective Needs of Knowledge Contribution and Seeking

Explanations of Knowledge Sharing Willingness	Cognitive-Affective Approach	Social Capital Theory	Social Cognitive Theory
Knowledge Contribution Willingness	<p>Cognitive Needs</p> <ul style="list-style-type: none"> • Reciprocity norm • Reputation attainment • Community Commitment • Altruism • Self-worth • Effort Saving • Concern of Privacy <p>Affective Needs</p> <ul style="list-style-type: none"> • Enjoyment • Trust • Psychological Safety 	<ul style="list-style-type: none"> • Reciprocity norm • Reputation attainment • Trust • Community Commitment • Altruism 	<ul style="list-style-type: none"> • Self-worth • Sharing Effort
Knowledge Seeking Willingness	<p>Cognitive Factors</p> <ul style="list-style-type: none"> • Effort Saving • Seeker's Knowledge Growth • Information Resource • Contact Resource <p>Affective Factors</p> <ul style="list-style-type: none"> • Trust • Receptive Mood • Psychological safety 	<ul style="list-style-type: none"> • Information Resource • Contact Resource • Trust 	<ul style="list-style-type: none"> • Seeking Effort • Seeker's Knowledge Growth

Chapter 4

Why Will I Share? Examining Knowledge Contribution on Social Media

4.1. Introduction

Social media engagement is rising fast among professionals and knowledge workers, high-income and highly educated, as the social network becomes a content destination and has a big international presence. For example, LinkedIn has gained its popularity being the place for professionals to network, exchange and share information and knowledge. This usage is largely driven by its population's needs and desirable by organizations which eager to tap social media resources. On the other hand, from organizational point of view, over 90% of Fortune 500 companies have partially or fully implemented social media by the end of 2013 (Suryanarayanaa and Lamichhane, 2013). Social media is leveraged by organizations to build up internal workplace that streamlines communication among employees. They give employees a sense of online community and help establish connections between departments, especially within larger corporations. There has been a trend where enterprise social network like Salesforce and Tibbr, and personal social media like Box, Evernote and LinkedIn are put into place to enhance collaboration.

For example, Schneider Electric, a 170-year old global specialist in energy management, leverages social media to revolutionize the outdated business processes used by their 150,000+ employees. Social media is introduced so that “employees have one place where they can connect with each other, access their applications and their workflow...removing complexity to help them become more efficient and work smarter...”, according to Hervé Coureil, the CIO of the company. When social media is embedded in enterprise context, apart from personal socialization, it generates and supports social network in an enterprise-based, contextual, business-related network system. The key value is to keep employees connected with one another, as well as to external resources. It offers a great way to stay in touch with others, and more importantly, it is cohesive and contextual for businesses or generally

productive for businesses. Social media presents a way for businesses to keep all of their employees and outside resources connected, but in a professional and efficient manner for the workplace.

In this research, we put forward a theoretical framework based on socio-technical perspective (Blumberg and Pringle, 1982) that may account for the contingencies enabled by technical advances of social media. With this, we investigate technical characteristics of social media as moderators of the relations between cognitive (affective) needs and knowledge contribution willingness. Specifically, we propose that technical characteristics can moderate direct effects rooted from cognitive or affective needs toward knowledge contribution willingness. An important implication is that we highlight the relative importance of each technical characteristic to see which cognitive or affective need is moderated by what technical characteristic. From a general point of view, this study would provide explicit suggestions of customizing technical characteristics of knowledge sharing mechanisms suitable for knowledge sharing needs. While there have been some information systems studies that investigated how properties of communication channels are related to structural and social attributes of informal networks in firms (e.g., Oke and Idiagbon-Oke, 2010), to our knowledge, such issue has not been a subject of recent enquiry of social media at an individual level.

In short, building on the literature review in prior chapter (Chapter 3), this chapter intends to address two key issues: How do social media characteristics foster knowledge contribution? What are the interaction effects between social media characteristics and knowledge contribution needs (i.e., cognitive or affective)? This chapter is structured as follows: in Section 4.2, drawing upon socio-technical perspective, we put forth the building blocks of the interaction model by laying cognitive and affective needs, social media characteristics in place respectively. The Section 4.3 proposes a set of hypotheses that match knowledge contribution needs with characteristics of social media. The Section 4.4 shows research methodology we adopted as well as the development of survey instrument. A large scale survey was conducted among five companies in China providing financial service. The survey results

and research findings was presented in Section 4.5. Finally, we discussed the contributions and implications that this study made to literature and practice in Section 4.6.

4.2. Interaction Model from Socio-Technical Perspective

It is obvious that knowledge contribution on social media involves two kinds of interactions. One of them is the interactions between human and systems of social media. Knowledge contribution starts when knowledge source uses social media as a mechanism to effectively notify others about what they know. However, the contribution makes sense to potential knowledge users only when contributor goes further to help recipients generate proper understandings. As a result, knowledge may be shared in the form of a story telling, or sharing a similar experience that a method or technique was developed or used to solve a problem. Thus, it necessitates the second kind of interaction- that is between human and human on a virtually mediated platform. If unable to provide a solution directly, knowledge contributor may suggest someone else who might possess the expertise in need and be willing and able to help, which is also one way of knowledge contribution on social media. Thus, it is reasonable to characterize interactions on social media from technical sides as well as human factors.

An overarching theoretical perspective adopted in this study is viewing social media as a socio-technical system (Trist and Murray, 1993; Kling and Courtright, 2003). The virtual spaces enabled by technologies which are used to support interpersonal communications, can be seen as socio-technical systems where technical components interact with social factors. Consequently, whether knowledge sharing in online community will happen largely depends on what are the needs affecting the contributors' willingness and the role played by the technology in fulfilling these needs.

Preece (2001) categorized the characteristics of online community as usability and sociability, and argued that both of them may promote members' participation in community system, both for knowledge contributor and knowledge seeker. By relating to these two concepts, in this study, we adopt transparency and interactivity to accurately reflect the characteristics of social

media. Usability, a well-established concept, refers to the degree to which system is acceptable to users. Thus, knowledge contributor needs to be able to track their knowledge relevant activities (Wasko and Faraj, 2005; Kankanhalli et al., 2005a; 2005b). This leads to the visibility and identification of knowledge tracking (Goodman and Darr, 1998) as the primary dimension of usability on social media. We use the term of transparency, rather than usability, to accurately describe the characteristic which is highly related to cognitive needs affecting users' sharing behavior (Phang et al., 2009). Cognitive needs are related to reputation attainment, reciprocity expectation, effort concern, privacy concern, self-worth and with community identification.

On the other hand, the ineffectiveness of knowledge contribution is a result of failure to meet people needs of social interaction. Thus, interactivity is more related to affective needs of knowledge contributor than transparency (Phang et al., 2009). Affectively, contributor would like to help receiver create a contextualized solution if the emotional factors stemming from enjoyment, moral obligation of altruism, and psychological safety are fulfilled through intensive social interaction.

Although Phang et al. (2009) raises the question of translating individual motivational antecedents into a set of requirements of the characteristics rendered by online system, such as visibility and interactivity, they did not explicate the underlying rationale why these translations are required. In another word, what kind of cognitive or affective need will be moderated or transferred to the requirement of technical characteristics is unclear. Our research aims to give clear and straightforward evidence of the mapping scheme between cognitive (affective) needs and social media characteristics. Some needs could be partly or fully moderated by some social media characteristics. Only if we have well-grounded understanding of the moderation effects, it will be confident to differentiate the camps between individual's motivational antecedents and requirement of technical environment, and further to identify the transferrable relationship between the two sets of factors.

However, knowledge sharing literature rarely examine these contingencies enabled by technical characteristics, which is likely to affect explanatory power of knowledge sharing needs towards knowledge contribution willingness. This study explicitly models the interactions between knowledge contribution needs as well as social media characteristics (as shown Figure 4-1).

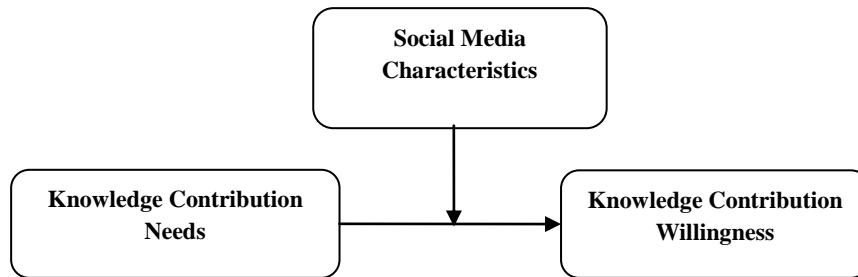


Figure 4- 1 Research Model

4.3. Research Hypotheses

The central hypotheses were developed to investigate the moderation effects of social media characteristics on knowledge contribution needs so as to enhance knowledge contribution willingness. The proposed framework was shown in Figure 4-2.

4.3.1. Cognitive Needs on Social Media

4.3.1.1 Transparency and Reputation Attainment

Reputation attainment is the desire to build positive image by contributing knowledge in social media (Wasko et al., 2004; Wasko and Faraj, 2005). According to social exchange theory, status and respect are social rewards that are resulted from reputation and desired by individuals who participate in knowledge contribution. An individual's reputation attainment desire is a powerful force for encouraging contribution of knowledge in social media (Wasko and Faraj, 2005). Thus, we hypothesize,

H4.1a. The more the contributor perceives that he/she will attain reputation from contributing knowledge, the greater the knowledge contribution willingness in social media.

In the context of social media (i.e., social networking services), the transparency is the extent to which user believes that the social media is capable of tracking accurate and reliable information about all users. For example, a Weibo user keeps a brief profile about oneself. The public profile includes the full name, the location, personal information, and the interest of the user. The people who follow the user and those that the user follows are also visible to other users. Beyond that profile information, a transparent social media encourages members to contribute knowledge by providing them with acknowledgement. On social media, tracking of records, reviews and appreciation obtained from other members transform a member's past valuable contribution into a positive reputation.

Transparency helps track individuals contribution in a way that any knowledge contribution can be traced and evaluated later by other members. More importantly, individuals who contribute high-quality knowledge will be able to be acknowledged based on the tracking records, and in return, reputation will be built up with the solid contribution records before. Additionally, individuals can obtain feedback on whether their contributed knowledge has been relevant or useful. Once knowledge contributors perceive the social media as transparent, they are confident that their contribution will be more likely to be found out by other members in the social media, leading to an increased expectancy of reputation attainment. Thus, they will be more likely to be willing to share their knowledge to others. Thus, we hypothesize,

H4.1b. The transparency of social media moderates the effect of reputation attainment on knowledge contribution willingness, in that the effect of reputation attainment on willingness increases as the perceived transparency of social media increases.

4.3.1.2 Transparency and Reciprocity Expectation

Reciprocity states that individuals help others because they hold the expectation to get helped in future (Kankanhalli et al., 2005). Prior empirical studies have supported that the reciprocity motivation serves as a strong predictor of knowledge contribution (Wasko and Faraj, 2000). Reciprocity norm in online community will encourage its user to get involved in future

contribution. People sharing in return for the prior favor will be more likely to believe that his good deed will also get reward from others in future. Thus, we hypothesize,

H4.2a. The more the contributor perceives that he/she will gain favor in return from the recipient, the greater the knowledge contribution willingness in social media.

The degree to which an participant contributes to the online knowledge base depends on the gains that this contributor expects to derive from it—that is, on the extent to which this contributor expects others to reciprocate the favor. Reciprocity is perceived by knowledge contributor as a norm that creates further reciprocal arrangements. As noted by prior study (e.g., Kiesler and Sproull, 1991), system characteristics of online community will impose effects on the social climate within a virtual community, which in turn, can be expected to influence knowledge sharing. Features such as identification within an online community can positively contribute to the emergence of such a reciprocity norm. Also, it will affect the degree to which collectivism becomes salient, resulting in strengthened sense of reciprocity. Thus, transparency of social media enables contributor to the interrelatedness with others, the sense of belonging the same community, by authenticating identity, visualizing past behavior records as well as timely update of information. As a result, the belief of reciprocity will be reinforced in a high transparent environment, so that knowledge contribution is facilitated. Thus, we hypothesize,

H4.2b. The transparency of social media moderates the effect of reciprocity expectation on knowledge contribution willingness, in that the effect of reciprocity expectation on willingness increases as the perceived transparency of social media increases.

4.3.1.3 Transparency and Community Identity

A salient community identity increases members' sense of being part of an online community. Social identity theory posits that if individuals perceive themselves as community members it will lead to intra-community favoritism. When community identity is salient to members, making a contribution to

online community is important to them because they feel that their connection with their community is stronger. It is reasonable to argue community identity also leads to emotional involvement with the others in social media. Consequently, when members perceive salient community identity within their social media, they are more likely to contribute knowledge. Thus, we hypothesize,

H4.3a. The more the contributor perceives that he/she belongs to the sharing community, the greater the knowledge contribution willingness in social media.

As discussed earlier, stronger community identity results in greater intra-community favoritism and sense of community (Hennessy and West, 1999). Transparency of social media is in favor of establishing social identity within online community, by the virtue of rating system and traceable records of contribution. As time goes on, participants may feel they are part of a community and engaged in relationships with others. Although contributions are independent, participant will feel like collaborative with many of other participants in a visible and transparent platform. Thus, the effect of the sense of community identity will be increased in high transparent platform. Thus, we hypothesize,

H4.3b. The transparency of social media moderates the effect of community identity on knowledge contribution willingness, in that the effect of community identity on contribution willingness increases as the perceived transparency of social media increases.

4.3.1.4 Transparency and Self-worth

The self-worth positively affects knowledge contribution. In social media context, self-worth refers to one's belief that his self-importance will grow and develop when his or her knowledge enables the solution of a problem. Self-worth, as an internal evaluation of one's own value differs from reputation, which is an external evaluation. Research shows that potential helpers are more likely to contribute knowledge when they believe in themselves as being competent and confident (Brock and Kim, 2002). Thus, we hypothesize that,

H4.4a. The more the contributor perceives that he/she will be more competent and influential by sharing knowledge, the greater the knowledge contribution willingness in social media.

Researchers claimed that making participants being aware of their contributions are needed because of their self-worth are stronger motivators (Preece and Shneiderman, 2009). In social media, knowledge contributor will get recommended by its audience through mechanisms such as a simple applause function “like”, or “recommend or share to friends”. For example, on Weibo.com or LinkedIn, content will be ranked “most popular discussions” if they receive the most number of “likes”, or supportive comments. User whose contributions stimulate the most participation from other users was highlighted as “top influencers” (Rao, 2010). Consequently, knowledge contributor will be more likely to perceive himself as competent and influential, in a transparent social media, resulting in an encouraged contribution willingness. Thus, we hypothesize,

H4.4b. The transparency of social media moderates the effect of self-worth on knowledge contribution willingness, in that the effect of self-worth pursuit on willingness will increase as the perceived transparency of social media increases.

4.3.1.5 Transparency and Effort Concern

Knowledge sharing in online communities primarily occurs when individuals are motivated to access the network, review the questions posted, select those they are able and willing to answer, and take the time and effort to formulate and post a response. Knowledge sharing will entail costs to knowledge contributors as an expense of time and effort (Ba et al., 2001; Markus, 2001). The time required to review questions, and codify and post answers can be considered as an opportunity cost, because this time and effort could have been spent to obtain alternative rewards from other sources. Additionally, after sharing knowledge, there may be additional requests for clarification from knowledge recipients, which take up more time and effort from knowledge contributors (Goodman and Darr, 1998).

Some prior studies (e.g., Kankanhalli et al., 2005a) use the term "codification effort" to refer to the time and effort required to explicate and codify knowledge. This may not reflect the dynamic interaction in an online community; and thus this study uses another term "effort concern" to refer to the cognition of individual that time and effort were required to answer the questions in social media. Effort concern represents the perception of the contributor that sharing knowledge is laborious and will cause her extra effort. Individual is always effort-averse, rather than effort-loving because of scarcity of resource, if we see effort as resources (Michailova and Husted, 2003). The time and effort cost is argued to hinder individuals' willingness to share their knowledge. For example, in their study on knowledge contribution in electronic knowledge repositories, Kankanhalli et al. (2005a) suggest that codification effort negatively affects knowledge contribution behavior in organizational contexts. Likewise, in their qualitative study on knowledge sharing in three online communities, Hew and Hara (2007) find that the most common barrier to knowledge sharing reported by participants is lack of time. Thus, it is reasonable to believe that an individual's willingness to share knowledge in social media may be deterred by the time and effort on answering questions. Thus, the following hypothesis is proposed,

H4.5a. The more the contributor perceives that sharing particular knowledge requires effort, the lower the knowledge contribution willingness to share in social media.

Transparency implies that users to a certain extent can see and be seen in terms of awareness and visibility, free of effort, due to advancement of information technology. Users on social media own a personal page or profile, and more often, join one or more discussion groups of interest. Users update their profiles, add pictures or texts, to their own pages, or raise questions by initiating a discussion thread, and almost at the same time, other people can be updated of these changes in a timely manner. Thus, being updated with latest news, discussion topic, questions of interest, knowledge contributor can easily locate the context where he might be helpful. Furthermore, it is more effort saving to reach the recipient in a transparent communication medium. For instance, in Facebook, LinkedIn or Weibo, one can reach out to people related

immediately by referring to or @ (at) one's username. Basically without any lag, the one being referred will be able to receive the message instantly. Conversation will be initiated. Thus, it is more likely to lead to a knowledge contribution if contributor perceives reduced effort to share in a transparent environment. Thus, we propose,

H4.5b. The impact of effort saving concern on knowledge contribution attempt is weaker for a more transparent social media.

4.3.1.6 Transparency and Privacy Concern

The success of online knowledge sharing community such as social media largely depends on individuals contributing their knowledge. One of the major challenges of online community knowledge contribution is to overcome barriers that prohibit people from doing so. People usually have a low motivation to contribute knowledge to public repositories, when there are senses of a lack of privacy, since people do not like to expose their information and expertise to others. In another word, people with more concern of privacy will be more likely to be reluctant to share knowledge or information on online community.

H4.6a. The higher the contributor concerns information privacy when share particular knowledge, the less the knowledge contribution willingness to share in social media.

Privacy within social media is often controversial (Dwyer et al., 2007). Social media records all interactions, and retain them for potential use in social data mining. However, nobody is literally forced to join a social network, what is more, users are voluntary to reveal their personal information, for instance, birthdays, phone numbers, or city where they currently live. Thus, much of the existing academic research on social media focused on privacy concerns (e.g., Gross and Acquisti, 2005; Stutzman, 2006).

By default, everyone on the social media (Facebook, Weibo.com) appears in searches of everyone else. Transparency of social media needs to be implemented with a careful control to users to choose what information they are willing to reveal to whom. This increases the expectations of validity of

the personal information and the perception of the online space as a closed and trustworthy community. The hesitation to share knowledge will be alleviated. Otherwise, enhanced transparency increase privacy concern in social media technologies. Thus, we hypothesize,

H4.6b. The impact of privacy on knowledge contribution willingness is stronger in a more transparent social media with authenticated members and privacy controls.

4.3.2. Affective Needs on Social Media

4.3.2.1. Transparency and Trust

The absence of trust between parties is believed to hinder contributor's willingness to share and the receivers' perception of the knowledge to be transferred (Polanyi, 1966; MacKenzie and Spinardi, 1995; Lazaric and Lorenz, 1998). Thus, on social media, knowledge contributor will be more likely to share what he knows to recipient when trust is in presence. Thus, we hypothesize,

H4.7a. The more the contributor trusts the recipient, the more he or she will be willing to share his/her knowledge with the recipient in social media.

Knowledge contributor and knowledge seeker can find the well preserved historical behavior information of the counterparts. The mutual trust will also be enhanced based on the transparent counterpart's past experiences, behavior and reputation records. In a high transparent online community, such as LinkedIn, users' education background, working experiences, closed professional social network were revealed to users' direct connection. Even if they are not acquaintance in reality, authenticated and adequate information about the counterparty will be helpful to build up trust between the "familiar strangers". Thus, they will be more likely to get involved in knowledge contribution activities. Thus, we arrive at following hypotheses,

H4.7b. The impact of trust on knowledge contribution willingness would be increased in a more transparent sharing platform.

4.3.2.2. Interactivity and Trust

Interactive knowledge sharing mechanism enables knowledge source to get immediate feedback, which is essential when the recipient does not understand the knowledge, and the source could respond to the confusion raised by the recipient (Coenen et al., 2006). Highly interactive communication channels may enable knowledge source to initiate direct and instant conversation with increased interactions and socialization. Such high levels of social interactions between members may lead to the possibility to construct trust between source and recipient (Dahlstrom and Ingram, 2003). Moreover, the high level of interactivity on social media enables source and recipient to express emotional appreciation, which may lead to high level of trust. Thus, knowledge contribution willingness was enhanced. And, we hypothesize,

H4.7c. The impact of trust on knowledge contribution willingness is stronger in more interactive sharing platform.

4.3.2.3. Interactivity and Altruism

Pelozo et al. (2009) found that employee's volunteering behavior is built upon the altruistic motive. It is a moral obligation based on knowledge contribution perceives to himself and share what he/she knows to others in need. The predictive power of altruism on behavior has been supported by empirical studies in knowledge contribution research. Thus, we hypothesize,

H4.8a. The more the contributor is altruism-oriented, the greater the knowledge contribution willingness in social media.

Interactivity is particularly important for knowledge contribution because of the need to have a technology-enabled environment and knowledge contributors feel comfortable to share knowledge and get immediate feedback from recipients. It has been found that interaction would have a powerful impact on people's perceptions and emotions towards other users in the community. As a result, members will consider others' welfare over their personal interests. Thus, the knowledge contribution willingness was strengthened. And, we hypothesize,

H4.8b. The interactivity of social media moderates the effect of altruism on knowledge contribution willingness, in that the effect of altruism on contribution willingness increases as the perceived interactivity of social media increases.

4.3.2.4. Interactivity and Safety Concern

Knowledge sharing has an inherent potential for challenge or embarrassment within any group (Argyris, 1982). Knowledge is often built on errors, and exposing those errors to others puts the contributor into a threatening situation. Thus, a climate that is safe for failing and admitting mistakes is more likely to lead knowledge sharing to take place. Thus, we hypothesize,

H4.9a. The higher the contributor perceives psychological safety when share particular knowledge, the higher the knowledge contribution willingness to share in social media.

Transparency on social media cultivates and encourages mutual support, diversity, openness to conflicting views, and tolerance for failure. Knowledge contributor feels less stressful when he is exposed to a tolerant, open-minded and diversity-welcome online community. In line with research on motivation of knowledge contribution (May et al., 2004), intrinsically, when knowledge source will feel less pressure to share his comments and insights, and perceive it more likely to be accepted, he will be more willing to share his knowledge. Thus, we hypothesize,

H4.9b. The impact of safety on knowledge contribution willingness is stronger in a more transparent social media.

4.3.2.5. Interactivity and Enjoyment

Enjoyment is the psychic reward that knowledge contributor gets from helping others. Previous research shows that members in electronic communities of practice are motivated by enjoyment to make knowledge contributions. It is meaningful in social media contributor will be more likely to share knowledge when he perceives more enjoyment. In such sense, we hypothesize,

H4.10a. The more the contributor perceives that he/she will gain enjoyment by sharing knowledge, the greater the knowledge contribution willingness in social media.

Online knowledge contributor enjoys the interaction process by offering expertise, forming organized information, telling stories and participating in conversations and making friends. Social media of high interactivity fills such needs well by rendering real time communication channel, technology-supported socialization and interaction full of fun (e.g., multi-media information). Thus, the contributor will be more willing to engage in sharing activities. Therefore, we hypothesize,

H4.10b. The interactivity of social media moderates the effect of enjoyment on knowledge contribution willingness, in that the effect of enjoyment on contribution willingness increases as the perceived interactivity of social media increases.

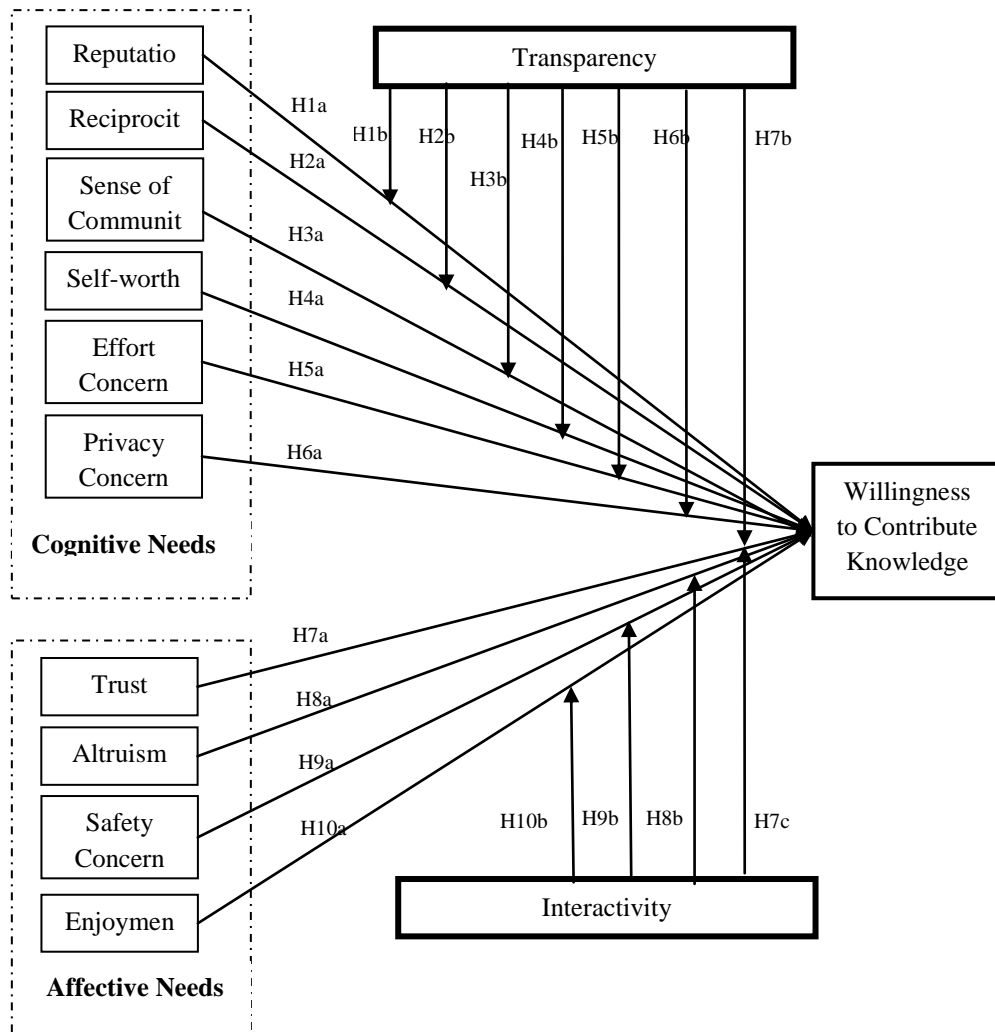


Figure 4- 2 Direct and Interaction Hypotheses

4.4. Research Methodology

We tested the knowledge contribution model in this chapter as well as knowledge seeking model in Chapter 5 using the data collected from two different questionnaires, which survey the same sample of respondents. One focused on respondent's experiences as a knowledge contributor and the other was on one's role of knowledge seeker in SNSs (e.g., Weibo.com, Facebook, LinkedIn), contributing or seeking work-related information, knowledge, experiences and opinion. The survey instrument was used to test the models because it provides a basis for establishing generalizability, allows to be reused, and has statistical power. First, a literature review was carried out within the domain of the constructs to generate the sample items. Short interviews with senior consultants and managers were next conducted to

assess their face validity followed by a process of conceptual validation. A pilot study involving 20 top-level executives of surveyed firms was then conducted to assess the reliability and validity of these constructs. The sample size of pilot study follows the thumb rule suggested by prior research – that is the 10 percent of the whole sample size. Finally, we drew our sample from the 5 major companies engaged in financial leasing consulting services in China. After omitting the pilot study participants from the list, the survey instrument was administered to the consultants, managers and employees of the organizations.

4.4.1. Sampling and Data Collection

The survey was conducted in China and administrated on a web-based questionnaire service. The survey was conducted on a multi-centered basis in China, in collaboration with a financial leasing consulting firm, Company A (as shown in Table 4.1), to investigate how knowledge sharing behavior is influenced by technical characteristics of social media. The subjects are the professionals from financial leasing industry, which is a typical knowledge-intensive industry. The key performance of financial leasing business depends on the extent to which knowledge and information flows along professionals. For example, a financial leasing advisor would ask and get answers to questions about best practices of leasing product and service, just-in-time technical information regarding to the leasing object, legal issues related to a leasing contract, and many other questions related to leasing transaction. We identified the drivers/obstacles for them to share knowledge and looked at whether these drivers/obstacles will be satisfied on social media platform.

The web-based questionnaire contains two components, the survey instrument for knowledge contribution behavior, and the other one for knowledge seeking behavior. The two components will be distributed to research subject. The knowledge contribution survey contains 24 questions. The knowledge seeking survey contains 21 questions. It is estimated 20-30 minutes to complete the questionnaire. The participation is on a voluntary basis. The background of our respondents is presented through the company profile surveyed. This is because we have reached data collection agreement with these companies. All of our surveys are anonymous, and we have to

configure our survey settings to disable IP address or email tracking. Moreover, the survey invitation with a link to questionnaire was distributed by HR department to their employees. Thus, we have no available solution to trace the actual locations of our respondents. However, the company profile as well as the numbers of respondents from each company would be helpful to complete the understanding of our sample.

Table 4- 1 Breakdown of Sample

Institution of Recruitment	Responses Received	Responses Used
Company A	30	25
Company B	89	51
Company C	40	30
Company D	30	18
Company E	15	12

Note: Company A offers funding management, merger and acquisition, and valuation advisory services, with expertise in the equipment leasing and finance industry. They work with leasing financial leasing companies across regions of China, headquartered in Beijing, having more than 40 financial advisory professionals, consultants and business analysts.

Company B is a leading financial leasing company in China, affiliated to a large manufacturer which is dedicated to manufacturing and supplying containers, trailers, tank equipment and airport facilities, having multiple subsidiaries across China, North America, Hong Kong, Europe and Australia.

Company C manages over billion dollars capital from a diverse group of international and Chinese investors. Core businesses include Private Equity, Real Estate, Structured Investment and Finance and Asset Management. Company C currently employs over 150 staff members throughout its offices in Hong Kong, Shanghai, Beijing, Tokyo and New York.

Company D is a wholly-owned financial leasing subsidiary in Shanghai. Company D was one of the financial leasing firms which are affiliated with the big five banks in China, providing leasing services and products to small and medium enterprises.

Company E is a wholly-owned subsidiary of a leading bank in China and registered in Shanghai. They provide specialized leasing and asset-financing services mainly in sectors such as equipment manufacturing, transportation, public services, financial markets and institutions and agro-related businesses.

A total of 204 responses were received and 136 out of 204 were eligible for subsequent analysis. Those respondents who has less or non-recent knowledge sharing experiences using social media were excluded. Our respondents have rich knowledge and experience using social media. 59% of the respondents were male and the rest 41% were female. However, no evidence has yet shown that gender plays a difference in the field of online knowledge contribution. More than 79% of the participants had more than 2

years of working experience and over 90% of the respondents had the job titles with consultant, business analyst or above. About 80% of them worked or had working experience in R&D, consulting, and financial department. The demographic data on our sample can be found in Table 4.2 into details.

Table 4- 2 Demographic Characteristics of Sample

Characteristics	Frequency (Percentage)	Characteristics	Frequency (Percentage)
<i>Industry</i>		<i>Job Function</i>	
Manufacturer Affiliated	51 (37.5%)	Consulting	50 (36.8%)
Consulting	55 (40.4%)	Finance	32 (23.5%)
Bank Affiliated	30 (22.1%)	R&D	28 (20.6%)
		Others	26 (19.1%)
<i>Gender</i>		<i>Education</i>	
Female	56 (41%)	Diploma	16 (11.8%)
Male	80 (59%)	Degree	49 (36.0%)
		Master above	71 (52.2%)
<i>Working Experiences</i>		<i>Job Title</i>	
< 2 years	28 (20.5%)	Consultant	50 (36.8%)
2-5 years	53 (39.0%)	Business Analyst	63 (46.4%)
5-8 years	30 (22.1%)	Director	10 (7.3%)
> 8 years	25 (18.4%)	Others	13 (9.5%)

4.4.2. Measures

To keep the questionnaire concise and clear, we first provide definition of social media and other terms that will appear in the questionnaire before participants starts answering questions. Social media – in this survey— is specified into social networking services (i.e., Facebook and LinkedIn), and Chinese version of social networking services popular in China includes Renren.com, Kaixin001.com and Weibo.com. Moreover, to offer a more concrete setting for participants, we advise respondents to share with us their social media experiences with Weibo.com, a social media platform with collective Web 2.0 technologies.

The respondents were invited to recall the most recent experience of using social media, for the purpose of knowledge contribution to others or offering solutions to others' problems. The questions in the questionnaire were to identify and list out the possible reasons why they would like to share the valuable information, knowledge and experiences to others. To avoid biased results towards successful examples, the participants were reminded that the outcome of the knowledge contribution examples can be either successful or not. They will express their opinion and indicate how they agree or disagree with the statements based on Likert Scale (from 1 for Strongly Disagree, to 7 for Strongly Agree).

This survey is based on self-reported results. To evaluate and control the effect of common method bias, we insert a marker question to test whether common method bias is significant or not in our survey. Appendix D lists definitions and measures of each construct used in this study. In this study, the items used to operationalize the constructs included in each investigated model were mainly adopted from previous studies and modified for use in the social media context. This study measured 10 predictors as well as the dependent variable, with two moderators respectively. Predictors include: reputation, reciprocity, community identity, safety concern, privacy concern, effort concern, enjoyment, self-worth, trust and altruism. The two dependent variable are willingness to contribute and knowledge sharing success. The moderators are transparency and interactivity of social media.

4.5. Results Analysis

In this study, PLS, as implemented in SmartPLS version 2.0, was chosen and used for hypotheses testing primarily because it allows latent constructs to be modeled as either formative or reflective indicators. Reflective indicators reflect an unmeasured latent construct that is deemed to exist before it is measured, and are invoked to account for the observed variances and covariances. Formative indicators are used to form a superordinate construct (used as categorization and measurement devices for complex phenomena) where the individual indicators are weighted according to their relative importance in forming the construct (Chin, 1998; Law et al., 1998; Purvis et al., 2001). Formative indicators are also invoked to minimize residuals in the

structural relationships. In this model, the two moderating constructs—transparency and interactivity-- were operationalized as formative, emergent constructs formed from first-order reflective sub-constructs. PLS has an added advantage over LISREL, a popular structural equation modeling method, in that it follows a components-based strategy and thus, does not depend on having multivariate normal distributions, interval scales, or a large sample size (Fornell and Bookstein, 1982). While LISREL's emphasis is on overall model fit, making it "closer to the model, more confirmatory, and more model analytic," PLS is more prediction-oriented and seeks to maximize the variance explained in constructs, thus making it "closer to data, more exploratory, and more data analytic" (Barclay et al., 1995). Given the prediction-oriented nature of this study and the use of non-interval scales, PLS was the preferred technique for testing the structural model.

4.5.1. Assessment of Construct Reliability and Validity

For the reflective constructs, the internal consistency of each dimension was assessed by computing the Cronbach's alpha, composite reliability, and the average variance extracted (AVE) (Hair et al., 1998). All Cronbach's alpha and composite reliabilities exceeded Nunnally (1978) criterion of 0.7 while the average variances extracted for these constructs were all above the recommended threshold of 0.5 (Hair et al., 1998). In terms of indicator reliability, our reflective indicators show good results in terms of item loadings over 0.65 resulting the squared loadings greater than 0.5.

To examine factorial validity, we must examine convergent validity and discriminant validity. Since measures of Transparency and Interactivity do not necessarily co-vary, it is modeled as formative constructs. For the rest of the reflective constructs, our results of AVE shown in Table 4-1 satisfy the 'acceptable' threshold of convergent validity, i.e., greater than 0.5. In addition, each measurement item loads with a significant t-value on its latent construct to show the model fit. For discriminant validity, each set of the indicator items for constructs cleanly load on the construct. The cross-loadings show the loading of an item on its associated construct item is significantly greater than the loading of another non-construct item on the original construct. Additionally, following the Fornell-Larcker criterion, all items correlate most

strongly with their intended construct/dimension and the square root of AVE for these constructs is larger than any respective inter-construct correlations. As evident in Table 4-1, all of the constructs are distinct. For the formative constructs, In this study the variance inflation factors (VIFs) were less than 5, therefore indicating that no multi-collinearity problems exist, which does not imply the need to consider their exclusion due to redundant information.

4.5.2. Marker Variable Method

The effect of common method variance (CMV) is a major validity threat to research findings, in particular to survey-based research employing self-report methods of data capture (Doty and Glick, 1998; Podsakoff et al., 2003). In this study, we adopted the marker variable (MV) technique developed by Lindell and Brandt (2000) and Lindell and Whitney (2001). The MV technique controls for the effect of CMV in individual studies that do not employ multiple methods, and partials out the effect of CMV (Lindell and Whitney, 2001; Sharma et al., 2010). The technique is simple to employ in both a pre-planned and a post hoc analysis. Lindell and Whitney (2001) developed the MV technique to estimate and control for the effect of CMV within mono-method studies. The MV technique relies on the inclusion of a ‘marker variable’ in studies: “a scale that is theoretically unrelated to at least one other scale in the questionnaire. Thus, there is an a priori justification for predicting a zero correlation” (Lindell and Whitney, 2001). Hence, it can be employed to partial out the effect of CMV from the study and obtain estimates of true construct score correlations unbiased by CMV.

The MV technique can also be applied in post hoc analysis. The MV technique computes CMV-adjusted correlations as follows (Malhotra et al., 2006):

$$RA = (RU - RM) / (1 - RM)$$

where RA = CMV-adjusted estimate of a focal correlation

RU = Observed value of the focal correlation

RM = Marker variable correlation for the study.

In our results, there is no contamination from common method bias.

4.5.3. Structural Models

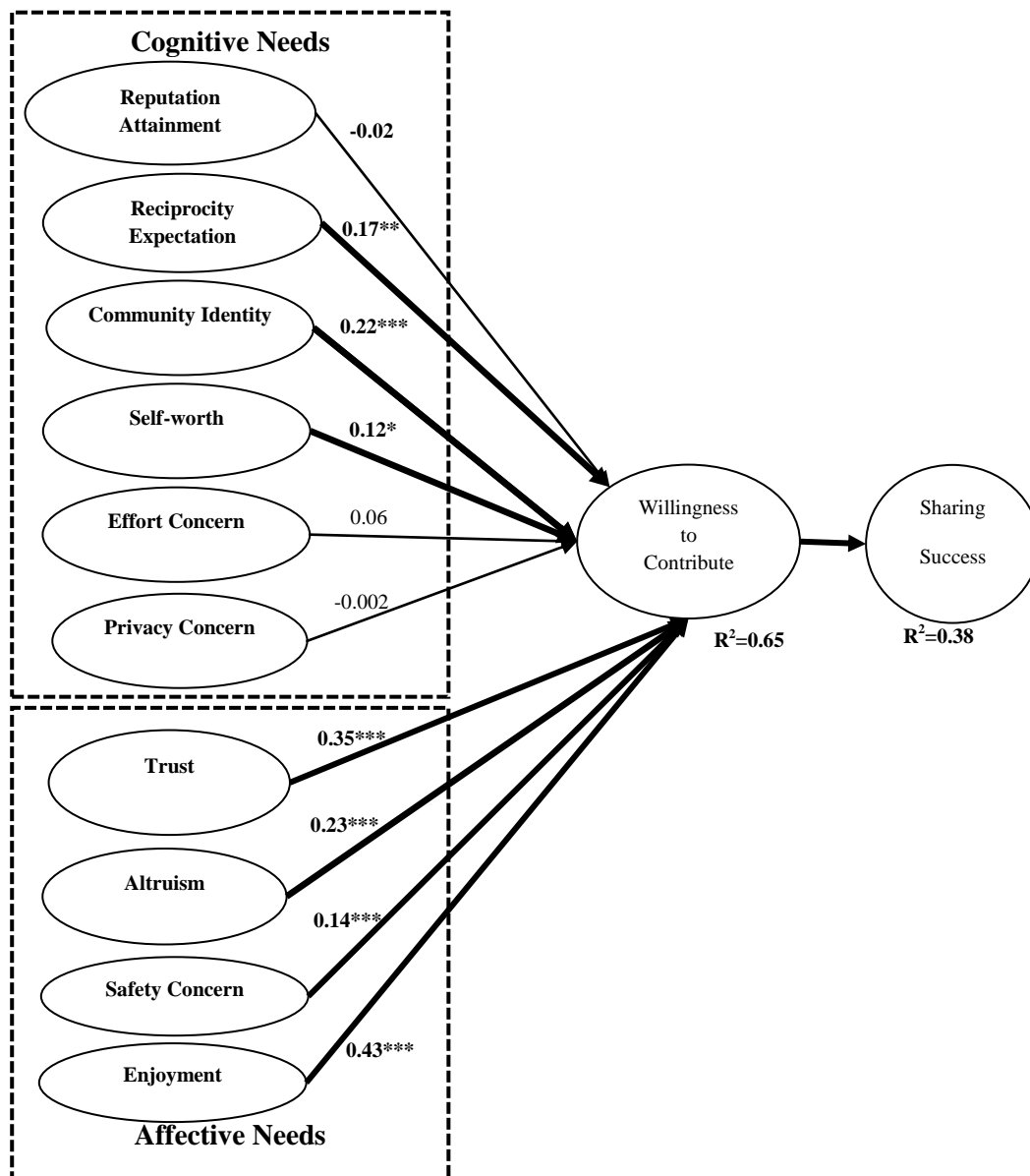
With an adequate measurement model (high item reliability, convergent validity and discriminant validity) and an acceptable level of multi-collinearity, the next step in our data analysis was to examine the significance and strength of hypothesized effects in our research model. Results of the analysis for the model, including path coefficients, path significances, and variance explained for dependent variable, are shown in Figure 4-3. Moderating effects were modeled using an interaction term computed as the cross product of the standardized construct scores. All the statistical tests were assessed using a two-tailed t-test. We discuss the results in the following sequence: direct effects of cognitive needs and affective needs, moderating effects on cognitive needs and moderating effect on affective needs.

Table 4- 3 Reliability and Validity

Construct	Cronbach Alpha	Composite Reliability	AVE	Altruism	Com	Effort	Enjoy	Privacy	Reci	Repu	Safety	Self	Success	Trust	Willingness to share
Altruism	0.92	0.95	0.86	0.93											
Community Identify	0.90	0.95	0.91	0.50	0.96										
Effort	0.95	0.97	0.92	0.16	0.42	0.96									
Enjoyment	0.94	0.96	0.90	0.76	0.46	0.16	0.95								
Privacy	0.88	0.92	0.80	0.40	0.27	0.21	0.43	0.90							
Reciprocity	0.74	0.84	0.57	0.56	0.61	0.33	0.55	0.27	0.76						
Reputation	0.96	0.97	0.93	0.69	0.54	0.22	0.64	0.20	0.59	0.96					
Safety	0.95	0.97	0.91	0.44	0.38	0.21	0.48	0.08	0.54	0.51	0.96				
Self-worth	0.81	0.88	0.71	0.55	0.42	0.25	0.50	0.36	0.52	0.50	0.40	0.85			
Sharing Success	0.93	0.96	0.88	0.53	0.56	0.27	0.61	0.35	0.62	0.56	0.49	0.60	0.94		
Trust	0.91	0.94	0.85	0.52	0.45	0.16	0.50	0.14	0.63	0.55	0.59	0.50	0.55	0.92	
Willingness to share	0.87	0.92	0.79	0.68	0.45	0.22	0.73	0.34	0.53	0.56	0.50	0.52	0.62	0.56	0.89

^a Diagonal elements are the square root of Average Variance Extracted.

All direct paths are significant with exceptions of reputation, effort saving concern and privacy concern, and the whole model is accounting for 65 percent of the variance in willingness to share, resulting 38 percent explained variance of sharing outcome. The results in Figure 4-3 support the hypotheses in terms of trust, altruism, safety concern and enjoyment. The hypotheses with respect to cognitive needs are significant with the exceptions of the paths from reputation attainment, effort concern and privacy concern are not significant at $p < 0.05$.



^a All values are: *, significant at $p < 0.05$; **, significant at $p < 0.01$; ***, significant at $p < 0.001$ in two-tailed tests

Figure 4- 3 Results of Direct Effects of Cognitive and Affective Needs

For the moderating effects on cognitive needs, as presented in Table 4-2, transparency moderates the relationship from cognitive needs -self-worth, privacy concern, reciprocity expectation and reputation attainment- to willingness to contribute. For the path from privacy to willingness to contribute, when transparency is high in social media, the concern of privacy is more likely to affect the willingness to contribute. Thus, privacy concern was stronger in social media when knowledge contributor was exposed to a highly transparent environment. The effect of self-worth is enhanced when transparency is high. The reputation attainment effect was enhanced when transparency is high, and so was the effect of reciprocity expectation. The implication could be in line with prior literature that reputation and reciprocity were increased by transparency.

For affective needs, effect of trust was reduced when transparency is high. Similar to self-worth, trust was put in place in a transparent social media community and result in the decrease of the effect of trust. Interactivity plays significant moderating roles on affective needs, specifically on trust, safety concern and altruism. The effect of trust was enhanced when interactivity is high, while the effect of safety concern is lowered when interactivity is prominent.

Table 4- 4 The Results of Hypothesized Effects

Hypotheses	Results
Cognitive Needs on Social Media	
H1a: Reputation Attainment→Willingness to Share	Not Supported
H1b: Transparency*Reputation Attainment→Willingness to Share	Supported
H2a: Reciprocity→Willingness to Share	Supported
H2b: Transparency*Reciprocity→Willingness to Share	Supported
H3a: Community Identity→Willingness to Share	Supported
H3b: Transparency*Community Identity→Willingness to Share	Not Supported
H4a: Self-worth→Willingness to Share	Supported
H4b: Transparency*Self-worth→Willingness to Share	Supported
H5a: Effort Saving→Willingness to Share	Not Supported
H5b: Transparency*Effort Saving→Willingness to Share	Not Supported
H6a: Privacy→Willingness to Share	Not Supported
H6b: Transparency*Privacy→Willingness to Share	Supported
Affective Needs on Social Media	
H7a: Trust→Willingness to Share	Supported
H7b: Transparency*Trust→Willingness to Share	Supported
H7c: Interactivity*Trust→Willingness to Share	Supported
H8a: Safety Concern→Willingness to Share	Supported
H8b: Interactivity*Safety Concern→Willingness to Share	Supported
H9a: Enjoyment→Willingness to Share	Supported
H9b: Interactivity*Enjoyment→Willingness to Share	Not Supported
H10a: Altruism→Willingness to Share	Supported
H10b: Interactivity*Altruism→Willingness to Share	Supported

^a All values are: *, significant at p<0.05; **, significant at p<0.01; ***, significant at p<0.001 in two-tailed tests

Table 4- 5 Structural Estimate of Moderation Hypotheses

Moderation Path/ Hypothesis	Knowledge Contribution Willingness	
	Path coefficient	t value
H1b: Transparency*Reputation Attainment→Willingness to Share	0.107	2.02*
H2b: Transparency*Reciprocity→Willingness to Share	0.373	2.44*
H3b: Transparency*Community Identity→Willingness to Share	0.169	1.53
H4b: Transparency*Self-worth→Willingness to Share	0.384	3.19*
H5b: Transparency*Effort Saving→Willingness to Share	-0.208	0.64
H6b: Transparency*Privacy→Willingness to Share	0.176	1.96*
H7b: Transparency*Trust→Willingness to Share	0.125	3.30**
H7c: Interactivity*Trust→Willingness to Share	0.093	2.32*
H8b: Interactivity*Safety Concern→Willingness to Share	0.126	2.31*
H9b: Interactivity*Enjoyment→Willingness to Share	0.228	0.515
H10b: Interactivity*Altruism→Willingness to Share	0.052	2.08*

^aAll values are: *, significant at p<0.05; **, significant at p<0.01; ***, significant at p<0.001 in two-tailed tests

4.6. Discussion and Implications

4.6.1. Research Implications

The results of this study suggest a number of implications for researchers, from which several directions for future research can be derived. First, this study extends and integrates prior theory and research on knowledge contribution needs into a holistic view. Cognitive views look at knowledge contribution intention based on the understanding of knowledge contributor's rational perception towards system, community, and other users. In line with prior literature on online knowledge sharing, we found that knowledge can be shared successfully in the hands of affectively motivated contributors. We found that all cognitive motivation was not shown to be important.

In contrast to prior understanding (e.g., Smith, 1999; Kankanhalli et al., 2005), people who contribute their knowledge on social media are not significantly driven by rational cognitive needs like reputation attainment, effort saving, however, knowledge contributor was largely motivated by his affective moods or emotions, such as altruism belief to benefit others, trust

between knowledge contributor and seeker. The relationships found between emotional factors and knowledge contribution behaviors on social media are particularly important because they demonstrate the importance of affectivity. However, in contrast to prior findings (e.g., Stutzman, 2006), privacy is not on the top concern of knowledge contributor on social media. One possible explanation is that the change of online sharing norm that users perceive sharing private information to online friends as daily social behavior (Gross and Acquisti, 2005). For the SNSs fostering information disclosure, it has been noted that majority of the users are less sensitive to disclose their personal information to a large group of people, providing genuine names, personal photographs, locations (Gross and Acquisti, 2005).

Hence, the results of this study contribute to interpret the mixed findings regarding the relationship between motivation and knowledge contribution. To the extent that the knowledge contributed has more tacit than explicit components, these results are consistent with Osterloh and Frey's (2000) arguments that intrinsically and affectively motivated employees are required when the knowledge being shared is primarily tacit and when knowledge sharing outcomes cannot be easily measured. Since most knowledge sharing settings involve combinations of tacit and explicit knowledge, particularly in social media settings, this result may be of great significance. Future research is needed to empirically test the relative importance of affective and cognitive motivation for knowledge that differs in tacitness and complexity and is shared in various social media contexts.

This study also posits and finds support for a third set of factors that influence knowledge contribution in social media context. The results show that technology-related factors influence the contribution of knowledge on social media indirectly. Specifically, transparency intensifies the relationship between privacy concern and knowledge contribution. The role that transparency plays in such interactions is consistent with findings from other studies, which suggest that transparency will increase the risk that private information of knowledge contributor will be leaked out to others (Gross and Acquisti, 2005). The privacy concern of knowledge contributor will be increased when he shares knowledge with others. The relationship between

self-worth and knowledge contribution appears to be moderated by transparency. Self-worth in a transparency sharing context is easy to realize so that the effect of self-worth will be enhanced. Similarly, trust between knowledge contributor and seeker is firmly established in a highly transparent context so as to facilitate the knowledge contribution.

Another technology-related factor-interactivity influences knowledge contribution indirectly. Prior studies suggest that the lack of trust will inhibit the willingness to contribute knowledge due to ineffectual personal interactions between knowledge contributor and seeker (Salaway, 1987; Scott and Vessey, 2002). Thus, when knowledge contributor interacts with others frequently in social media context, knowledge contribution is positively influenced. On the other way, in a community where users trust each other, reciprocity expectation will not be the top concern of knowledge contribution.

Although hypothesized, there were no significant relationships between transparency and community identity, safety concern and reputation attainment. One plausible explanation for these insignificant findings is that other factors, such as self-worth and trust, may dominate why a contributor is willing to develop a positive relationship with a recipient and share his knowledge. The relationship between interactivity and enjoyment were also not significant. These insignificant findings deserve further scrutiny.

4.6.2. Managerial Implications

This study provides guidance for the increasing use of social media for personal information and knowledge sharing and the rising number of social media that are being implemented within organizations. This is important because managers in knowledge-intensive firms increasingly need to better understand how to facilitate knowledge sharing within and across organizational boundaries by tapping the resources enabled by social media.

The use of social media can be helpful in allowing people to stay connected and collaborate on projects. To extend knowledge sharing to people outside of one's regular circle, which is often built among a group within a particular department or sub-organization, it is advantageous for business employees to stay in contact among themselves and with outside resources,

such as vendors, clients, partners, customers, fellow industry workers, etc. However, concerns on social media implementations are more than often about that it might detract from business goals and waste time, as well as cause issues with confidentiality and privacy. Take a few social media implementation examples gaining plenty popularity in enterprises, we will illustrate how these social media characteristics are useful in knowledge sharing and good at easing concerns and driving success.

Apart from the results we have obtained from financial leasing industry, social media success happens in scenes across knowledge-intensive industries. For instance, Cathay Pacific Airways launched an internal social media campaign in 2011 for their 9,000 cabin crew across 8 countries. As remote workforce, cabin crew have most contact with passengers while limited contact with the company, sharing information and knowledge internally costs a lot of efforts and did not reap desired benefits out of investment. Via social media, they completely revolutionized the way their staff communicate, going from a bi-weekly corporate newsletter and face-to-face staff conversations to real-time travel alerts, announcements and increased employee engagement. Social media, tibbr, is used to broadcast critical updates and travel alerts. Their internal information sharing goes paperless, for information previously communicated through bi-weekly printed material to mailboxes. Their monthly general manager's update is switched to live streaming on social media with real-time questions and feedback. Related to the hypotheses developed and results obtained in this study, social media characteristics are the key enablers driving these kinds of information and knowledge sharing success.

Transparency, enabled by the features of personal profiles, microblogging, comments and voting system, helps users reach out to wanted audience easily, that is – sharing the right knowledge with the right people. For example, if a Cathay Pacific department head or a financial leasing company director wants to share confidential information with just company executives and not with the rest of the company, he may easily share that information with all of the executives by sending the information to an “executives” group, simply @executives, instead of having to send multiple emails and wait for multiple

replies. The information reaches the right people, and all of the recipients can comment openly with one another on the social network, without other users seeing their messages.

Interactivity is the characteristic that allows users to initiate conversation and get feedback in a timely manner, enabled by instant messaging, screen sharing, voice memos, event streaming, and mobile availability in one platform. That is the unique value empowered by social media. For example, instant messaging allows cabin crew or a leasing contract manager to view who is currently online and open a direct line of communication with another user. This direct line of communication may result in rapid responses that help people in the conversation complete their work more efficiently. What makes it meaningful to business is that these elements are provided in a unique contextual way, such that conversations can be built around subject and communities, and followers of subjects and members of communities can automatically and efficiently be brought into relevant, business-productive conversations and discussions.

Regarding to privacy and confidentiality concerns, social media supports network communities' partition. These partitions allow for privacy by separating certain groups of users. Users will not be able to join or see any information that has been posted or exchanged between members of a community if they are not members of that community. This partitioning of groups into communities allows users to privately and securely send, share, and receive information within a defined community. For example, if a leasing portfolio manager wants to communicate confidential information to a manufacturer, an external resource, the user may do so without worrying about other groups he or she interacts with knowing. It resonates with our empirical results found from social media use in that privacy concerns are eased at a platform with high usage visibility.

Moreover, transparency and interactivity, the two prominent characteristics, shared by most social media applications, like Facebook, Weibo, Tibbr, LinkedIn and Google+, exerts significant impacts nurturing affective motivation of knowledge contributor. As what we have found,

affective motivation are far more significant than cognitive motivation when it comes to willingness of a knowledge contributor. For example, on Google+ people are so often connecting with people they don't know already, and as such trust works towards reputation. However, trust can be nurtured by interactivity and transparency. In e-mail or Google+ message, much of the traditional markers of trust, such as voice intonation and body language, are hidden or even lost. Where examples of one's competence or reputation are lacking, people will construct whole profiles of another's personality from what little information is available. Transparency (e.g., full profile, past voting, comments and discussion threads) provides a full plate of information to link any series of situations to one's competence or reputations. On the other hand, interactivity enables responsiveness through mobility, voice message and conversation stream so as to support communication between knowledge contributor and seeker.

This research also benefits social media stakeholders including social media service providers, companies who are interested in leveraging social media for internal collaboration, and employees who are current social media users while unaware of its benefits to their work. For social media service and solution providers, to translate social media success into enterprise context, simply migrating Facebook and other popular consumer social media tools, is not enough. To create true value towards internal collaboration, it is to help people get their job done faster and better. Fundamentally, social media must be designed to fulfill user's needs when it comes to knowledge sharing and internal collaboration. To achieve knowledge sharing, social media must integrate tightly with - and enhance - a knowledge contributor's willingness. From this research, social media providers will get clear perspective on what are the characteristics matter to satisfy the needs.

For companies, especially those of large scale and with global presence, knowledge is evolving daily. The value online social networks provide to organizations is the ability to surface ideas and gain insights from links and patterns that are only discovered when all the people, processes and content are brought together in one place—i.e. when knowledge management becomes connected. Gathering real-time information and bridging the divide between

globally dispersed teams can be critical to productivity. With faster access to knowledge, organizations can solve problems sooner, cut costs and gain an advantage over competitors. As far as the natural desire to collaborate, most large companies, if not all, are at the other end of the spectrum. For example, employees genuinely wanted to work together to get products from ideation to market faster, but felt somewhat limited by traditional systems like email and phone calls. Turning to social media tool that enables transparency and interactivity, knowledge sharing is natural to engage employees. Marketing executives, designers, product managers and others now join forces around key topic areas in real time, so the right people can react and respond much faster to data, feedback, questions and suggestions. For employees, especially knowledge workers, social media will inspire them to be in charge of their own learning and professional development instead of just on information consumption. Conversations, processes update and news on related projects are all indexed. More importantly, external data will be brought in to enhance private and internal data.

4.6.3. Conclusions

This study examined the knowledge contribution needs in social media context using an integrated theory that posits the sets of cognitive needs, affective needs, and technical characteristics influence knowledge sharing. In the meantime, how cognitive and affective factors interact with technical characteristics is the major concern of this study. The results extend and apply prior research to an increasingly important and extensive information system context of social media. In sum, this study contributes to theory and practice in the information system domain, by focusing on knowledge sharing in the context of social media. However, our research findings and results should be interpreted in light of the following limitations. Firstly, our data are cross-sectional and not longitudinal, the posited causal relationships (although firmly based in generally accepted theories) could only be inferred rather than proven. Especially for fast changing social media platform, the characteristics and technical features are frequently modified, added, and removed depending on users' needs in order to improve user experiences. Secondly, because data collection was conducted among organizations in financial leasing industry in

China, our findings should not be interpreted as necessarily applicable to firms in distinctly different organizational contexts. I also acknowledge that the generality of this result would be influenced by culture because the respondents were Chinese nationals living and working in mainland China. Thirdly, our findings may well be vulnerable to the threat of self-reported bias although we have implemented measures to mitigate the common method bias. According to common method bias test, there is no evidence showing that our result was contaminated.

Chapter 5

Why Should I Seek? Examining Knowledge Seeking on Social

Media

5.1. Introduction

In the knowledge economy, if an organization wants to be innovative, efficient, effective and competitive in the market, it should be able to make full use of its collective expertise and knowledge (Wernerfelt, 1984; Grant, 1996). Especially for knowledge-intensive industries such as consulting, legal service, or financing, whose main resources are human skills and knowledge residing with knowledge workers, they need the capability to transform into knowledge-based organizations so as to survive and compete economically. However, in fact, it is always challenging to conquer the human natural tendencies hoarding knowledge and not accepting knowledge from others (Davenport and Prusak, 1998). As discussed by prior literature, the major barriers for knowledge seeker are the laborious process to consolidate advices from bunch of pieces of information or having no access to proper knowledge sources.

As noted in prior chapter (Chapter 3), most research on online and electronic knowledge sharing has focused on knowledge contribution behavior (Orlikowski, 1993; Constant et al., 1994; Wasko and Faraj, 2000; Bock et al., 2005). The assumption is that knowledge sharing is more uncontrollable than knowledge seeking. Once the supply of useful and relevant knowledge are in place, it is easier to make it available to employees who need it. However, from knowledge market perspective, at least, equivalent emphasis should be put on the demand side, knowledge seeking, in order to achieve a balanced view. Thus, this is the first gap that our research attempts to fill by enhancing understanding of how online knowledge seeking can be facilitated, and how the knowledge seeking needs can be satisfied (Markus, 2001).

Drawing upon social capital theory and social cognitive theories, individual motivational factors from knowledge supplier side include the

desire for reputation (Wasko and Faraj, 2005; Jeppesen and Frederiksen, 2006; Peddibhotla and Subramani, 2007), monetary incentives (Kankanhalli et al., 2005a; 2005b; Peddibhotla and Subramani, 2007), whereas information needs and knowledge growth (Kankanhalli et al., 2005b; Ma and Agarwal, 2007), and self-efficacy (Kankanhalli et al., 2005b) are found to be salient towards knowledge seeking propensity. However, there is little research that has attempted to take affective motivational factors into consideration in an online community. In this study, we adopt the categorization of cognitive and affective for all motivational factors. We draw upon socio-technical approach to address our objective of understanding how the characteristics of social media can promote knowledge seeking activities.

The purpose of this article is to present a conceptual model for examining knowledge seeking behavior given the new advent of social media. Although technological advances have produced new social media tools that allow individuals to seek and acquire information (e.g., Facebook, LinkedIn), studies specifically investigating their use for knowledge seeking have not surfaced. However, if only anecdotally, we know that knowledge seekers use networking functions, recommendation mechanisms, search engines and other tools available on social media platforms to acquire information and knowledge. With the groundwork in Chapter 3, the conceptual model is developed in this chapter. We identify recurring cognitive knowledge seeking needs and add in affective dimensions. In addition, we examine social media characteristics that influence knowledge seeking. Thus, in this chapter, we go directly into hypotheses development after a brief summary of theoretical foundations. After that, we introduce the research methodology adopted and the development of the survey instrument. The results of a large scale survey reveal the online social media activity of five financial service organizations operating in China. We hope to establish a well-grounded understanding that identifies the characteristics of social media technologies and knowledge seeking needs so as to specify their optimal match.

5.2. Literature Review

In an information society, seeking expert knowledge involves the processes of locating information and expertise, and acquiring necessary assistances from experts (Yuan et al., 2011). Two camps of researchers, organizational behavior researchers and information systems scholars, devote much effort on knowledge seeking issues. Organizational research focused on interpersonal relations in the search process (Morrison, 1993; Hansen, 1999; 2002), whereas information systems research tries to understand how to get knowledge from electronic resources. However, in most cases, both interpersonal and electronic resources are needed when seeking expert knowledge (Yuan et al., 2007), thus, effective knowledge seeking calls for a combination, more precisely, a match-up between individual, and technical factors (Schultze and Boland Jr, 2000; Desouza, 2003).

Focusing on the identification and acquisition of knowledge, which are the first two critical knowledge seeking activities, we do not consider the actual utilization and application of knowledge by the knowledge seeker. However, we do recognize that this last stage is critical for the effective transfer of knowledge. Thus, we refer to knowledge seeking as an activity to identify and acquire expertise, experience, insights and opinions by engaging in dialogue with individual people on social media platform. Our scope of knowledge seeking is comparable with the frequently cited definition formulated by Hansen (1999) knowledge search is the “looking for and the identifying of useful knowledge in an organization”(Hansen, 1999).

Knowledge seeking needs could be classified into cognitive needs and affective needs, as indicated in Chapter 3. Cognitive needs that affect knowledge seeking are manifested as seeker’s knowledge growth, effort to search and digest information, and information sources and contact sources that are available to knowledge seeker. Affective needs influencing knowledge seeker’s intention include trust that the knowledge seeker has with the knowledge source (i.e., trust); knowledge seeker’s openness to accept innovative information (i.e., receptive mood); and psychological safety which

ensures that the knowledge seeker is comfortable to admit his weakness to knowledge source (i.e., safety concern).

In line with socio-technical perspective, individuals' perceptions of an information system vary according to his needs (Davis et al., 1989; DeSanctis and Poole, 1994). Thus, different technical characteristics will exert effects varying on the spectrum of knowledge seeking needs. Specifically, transparency is more related to cognitive needs including effort concern as well as seeker's knowledge growth. Also, transparency is helpful to build up the premise of trust between knowledge source and knowledge seeker. Networking facility is a structural assurance which brings knowledge seeker with accessible contact resources, while content integration is meaningful to consolidate information resources and enhance information availability.

5.3. Research Hypotheses

The central hypotheses were developed to investigate the moderation effects of social media characteristics on knowledge seeking needs towards increased knowledge seeking willingness. The research model was shown in Figure 5-1.

5.3.1. Cognitive Needs on Social Media

5.3.1.1. Content Integration and Information Resource

It has been widely found that characteristics of the desired information influence how knowledge pursuit occurs. These factors include the quantity of information desired and the qualities associated with it. These variables may affect other already in-hand information. Availability of useful information provides a database to knowledge seeker to formulate his inquiry, refine the specificity of the topic, and determine the scope and relevance of information in the pool. Thus, information availability is not only an issue of collecting, but is also related to the issue of refining: when knowledge seeker needs to know the exact question he or she wants to ask. Information availability means getting information surrounding the totality of seeker's problem and identifying the relevant information he or she really needs. The more available the information to knowledge seeker is, the more likely they will be capable to conduct knowledge seeking. Thus, we reach the following hypothesis,

H5.1a. Information resource is positively related to knowledge seeking attempt in social media.

Content integration in social media consolidates information sources in blog, Wiki and RSS for users. It refers to the capability to be incorporated with many third party information sources. It also allows each knowledge seeker to generate a personalized content via the function of RSS. Knowledge seeker is capable of managing all the information available to him through an integrated interface. It is much easier for knowledge seeker to gather information of interest and useful. With high capability of content integration, knowledge seeker will be more likely to reach out relevant information of high quality, and leads to higher willingness to continue search of information. Thus, we propose,

H5.1b. The content integration of social media moderates the effect of information resource on knowledge seeking attempt, in that the effect of information resource on seeking attempt increases as the perceived integration of contents increases.

5.3.1.2. Networking Facility and Contact Resource

Knowledge is helpful only when they are accessible. One of the conclusions from our literature review is that physical access is not a significant determinant of source usage. Even in social network research, Borgatti and Cross (2003) show that physical proximity has an insignificant effect on the probability that an actor will seek information from another person. Since choosing a perspective of person-to-person knowledge seeking, we will also exclude the usability (perceived ease of use) element from the access construct. Access in our research is, therefore, considered the perceived availability (social and timeliness) of a knowledge source. Braganza et al. (2009) show in a qualitative research on the success of an intranet based KMS that access has a significant influence on the benefits of the KMS. Social network research finds that perceived accessibility of a knowledge source is a significant predictor of information seeking (Borgatti and Cross, 2003). Thus, perceived accessibility is an important predictor for information seeking and knowledge

transfer effectiveness is dependent on access to new knowledge sources. As a result, we propose,

H5.2a. The more accessible the seeker perceives the knowledge source is, the more the knowledge seeking attempt.

With advanced communications technology, access is less difficult in terms of technical accessibility. However, accessibility depends on the relationship between the seeker and the source. Social media networking facility provides the opportunity for individuals to develop a network of individuals who have similar interests. This manifests itself in several ways. Firstly, the social media serves as an intra-network clearing house by identifying those with relevant knowledge and helping individuals to connect with one another. Second, social media acts as a reference mechanism, quickly enabling individuals to evaluate the knowledge of other members without having to contact each individual within the network. Lastly, networking facility can help knowledge seeker to connect individuals from outside the network through introduction and recommendation by those who are already in seeker's network. This function can be critical, especially for knowledge seeker who is looking to identify individuals who hold the specific knowledge. Thus, we propose,

H5.2b. The networking facility of social media moderates the effect of source accessibility on knowledge seeking attempt, in that the effect of source accessibility on seeking attempt increases as the perceived networking capability increases.

5.3.1.3. Transparency and Effort Concern

The act of seeking knowledge requires expenditure of time and effort for knowledge seekers (Goodman and Darr, 1998; Markus, 2001). The substantial time to search information and find adequate pieces of knowledge will deter knowledge seeking. Formulating a query, refining the query to finalizing a satisfactory answer will entail cost of time and effort to knowledge seekers. (Constant et al., 1996; Goodman and Darr, 1998; Markus, 2001). Thus, we propose,

H5.3a. The more the seeker perceives that seeking particular knowledge requires effort, the lower the knowledge seeking attempt.

If social media can reduce seeking effort, it is more likely to be used by knowledge seekers. We expect the relationship between seeker effort and usage of social media for knowledge seeking to be moderated by transparency. Transparency enables indicative mechanism for information quality and source credibility. The belief in the good intent and their competence and capability are enhanced. From a knowledge seeker's perspective, high transparency implies the confidence that social media would be in favor of competent knowledge source and knowledge of high quality. Therefore, with high levels of transparency and corresponding belief, the deterrent effect of seeker effort on usage of social media may be reduced. We hypothesize that,

H5.3b. The transparency of social media moderates the effect of seeking effort on knowledge seeking attempt, in that the effect of seeking effort on seeking attempt decreases as the perceived transparency increases.

5.3.1.4. Networking Facility and Self-Knowledge Growth

An intrinsic benefit of knowledge seeking is knowledge growth (Hall 2001). Seekers like to benefit from other's experience as a substitute for their own personal experience (Wasko and Faraj, 2000). Knowledge growth can be seen as a benefit separate from the utility of results in that people may search social media for the sake of learning something new or satisfying their curiosity about a topic. The learning and knowledge acquisition that may take place as a result of knowledge seeking can lead to the intrinsic satisfaction of becoming more knowledgeable (Wasko and Faraj, 2000). Thus, we hypothesize that,

H5.4a. The more the seeker perceives that he/she will gain knowledge growth, the greater the knowledge seeking attempt.

On social media, knowledge seeker will be more likely to be exposed to innovative thinking different from those he can obtain through imitate and close connections, which is described as the strength of weak ties. Drawing from weak tie studies, statistically, numerous connections will increase the

probability that the knowledge receivers reach the proper knowledge source, because at least some contacts have effective resolution with similar knowledge interest. However, Burt (1983) pointed out that it is not the number of links, per se, that makes weak ties useful but the range or diversity of those ties. Social media are not only helpful to link content of interest but also identify superior knowledge resource in communities. According to Agarwal (2009), users can reach "familiar strangers" of high knowledge quality via blog sphere based on the judgment from public reviewing systems and the source's behavior history. Consequently, knowledge seeker will be more likely to benefit himself from connections and expansion of his social network, resulting in encouraged seeking intention.

H5.4b. The content integration of social media moderates the effect of self-knowledge growth on knowledge seeking attempt, in that the effect of self-knowledge growth on seeking attempt increases as the perceived content integration of social media enhances.

H5.4c. The network facility of social media moderates the effect of self-knowledge growth on knowledge seeking attempt, in that the effect of self-knowledge growth on seeking attempt increases as the perceived network facility of social media enhances.

5.3.2. Affective Needs on Social Media

5.3.2.1. Networking Facility, Transparency and Trust

Trust is a concept that has become widely popular and attracted attention from a variety of disciplines. A definition of trust employed in the social capital literature (Nahapiet and Ghoshal, 1998) is "the belief that the results of somebody's intended action will be appropriate from our point of view" (Misztal, 1996). According to Mishra (1996), trust is multidimensional arising from the confidence and belief in their: "(1) good intent and concern, (2) competence and capability, (3) reliability, and (4) perceived openness". McKnight et al. (1998) term the first three of these trusting beliefs as benevolence belief, competence belief, and honesty and predictability belief respectively and note that these are the most common trust beliefs cited in the

literature. In our study, the perceived openness and reliability belief is subsumed under other factors and therefore is not included as a constituent of trust.

Trust has been viewed as a key aspect of organizational context and as an antecedent of cooperation (Tsai and Ghoshal, 1998). Trust may improve the effectiveness of knowledge exchange by reducing both transaction costs and agency risks (Adler, 2001). Thus, the absence of trust between parties is believed to hinder the receivers' perception of the knowledge to be transferred (Polanyi, 1966; MacKenzie and Spinardi, 1995; Lazaric and Lorenz, 1998). In this study, trust can be interpreted in terms of cognitive and affective aspects. Cognitive-based trust refers to calculative and rational characteristics; it is developed when people do what they promise to do in a timely and professional fashion. Affect-based trust involves emotional elements and social skills of trustees, including care and concern. Thus, we propose,

H5.5a. The more the seeker trusts the provider cognitively, the more he or she will be willing to seek knowledge from the provider.

H5.6a. The more the seeker trusts the provider affectively, the more he or she will be willing to seek knowledge from the provider.

The transparency feature of social media enables the source and recipient to fulfill the commitment in a timely manner. In addition, both knowledge source and recipient in the transfer can find the well preserved historical behavior information of the counterparts. The mutual trust will also be enhanced based on the transparent counterpart's past experiences and behavior records. Thus, we arrive at following hypotheses,

H5.5b. The impact of cognitive trust on knowledge seeking attempt is weaker in more transparent sharing platform.

Moreover, networking facility of social media fosters the interpersonal interactions which are necessary to build a sense of trust and obligations critical to building social capital. The high level of interaction on social media enables source and recipient to express personal emotional concern, which may lead to high level of affective trust. By being able to bring people

together to create and share relevant knowledge, the networking premise creates the condition where individuals can “test” the trustworthiness and commitment of other members in their contact list. It is through these repeated interactions that individuals can develop empathy for the situations of others and can develop the rapport with individuals in the community. Thus, we propose,

H5.6b. The impact of affective trust on knowledge seeking attempt is stronger in social media with high networking facility.

5.3.2.2. Transparency and Receptive Mood

Affective aspects, such as attitude, stance, and motivation, may influence specificity capability and relevance judgments as much as cognitive aspects, such as personal knowledge, and information content. One attitude, referred to as mood, is not uncommon that an individual may assume during the phases of knowledge seeking: invitational, which leaves the person open to new ideas and receptive to change and adjustment according to what is encountered (Maher, 1969). An invitational mood may be more appropriate for the user to assume in the early stages of a search. An invitational mood or attitude allows the user to assume a posture of expectancy and enables him or her to take risks and to profit from mistakes. Thus, we postulate,

H5.7a. The more the seeker perceives that he/she is receptive and invitational, the greater the knowledge seeking attempt.

Transparency encourages interactions among members of the social media, with provision of introduction mechanism, visibility and awareness to other users. With more chances to find friends and meet people, users are more possible to accept and interact with each other. As the interactions among members increase, they are more likely to feel open mind to other members as well as opinions from them. Thus, we will propose,

H5.7b. The transparency of social media moderates the effect of receptive mood on knowledge seeking attempt, in that the effect of receptive mood on seeking attempt increases as the perceived transparency increases.

5.3.2.3. Transparency and Safety Concern

Knowledge sharing has an inherent potential for challenge or embarrassment within any group (Argyris, 1982). Seeking knowledge or help from other often implies seeker's inability in the subject or his lack of expertise towards problems yet to solve. Knowledge seeker would not admit his weakness unless he feels safe and comfortable when turning to someone for help. Thus, a climate that is safe for failing and admitting mistakes or inability is more likely to lead knowledge seeking to take place. Thus, we hypothesize,

H5.8a. The higher the seeker perceives psychological safety when seek help from particular knowledge source, the higher the knowledge seeking attempt to share in social media.

Transparency on social media cultivates and encourages mutual support, collaboration and sharing, openness to conflicting views, and tolerance for failure. Knowledge seeker feels less stressful when he is exposed to a tolerant, open-minded and diversity-welcome online community. When knowledge seeker feels less pressure to raise questions, and perceives to get constructive feedback, he will be more willing to seek help. Thus, we hypothesize,

H5.8b. The impact of safety on knowledge seeking attempt is stronger in a more transparent social media.

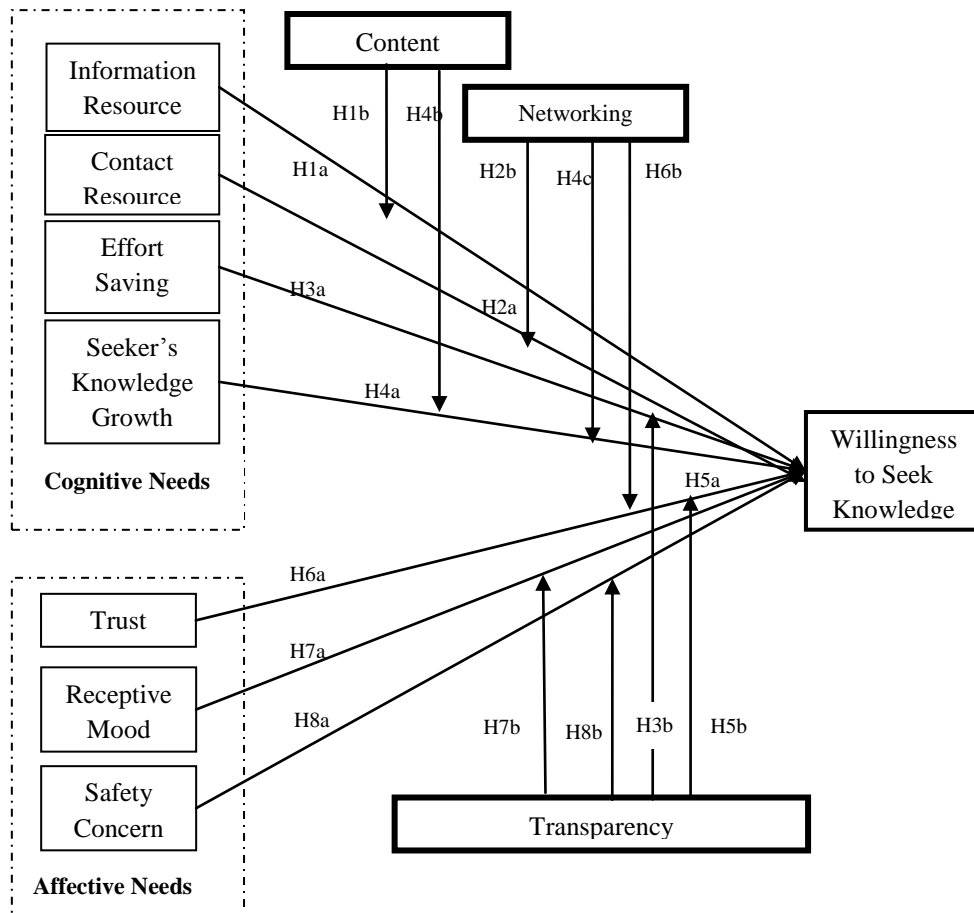


Figure 5- 1 Direct and Moderation Hypotheses of Cognitive and Affective Needs on Social Media

5.4. Research Methodology and Results Analysis

5.4.1. Measurement and Data Collection

We developed the items in the questionnaire either by adapting previous measures or by converting the definitions of constructs. Specifically, the items for the antecedents, social cognitive needs and social capital needs, were developed based on relevant theories and prior studies. The items for characteristics of social media, transparency, networking facility and content integration, were created and developed based on the definitions in this study. To date, there are no validated scales for most of the constructs with regards to the technical characteristics of social media. The measures of the characteristics, namely transparency, networking facility, content integration and interactivity, were developed as formative constructs due to the nature of

their multi-facet concepts. Reflective observed variables are correlated and unidimensional representing latent construct. Formative variables are not supposed to be correlated with each other or unidimensional (Chin, 1998). In this study, social media characteristics are formative constructs and knowledge sharing needs are reflective constructs. PLS supports both types of observed variables (Barclay et al., 1995; Chin, 1998).

The initial version of the survey instrument was then refined through a pre-test with 15 responses from 5 financial leasing companies. Next, the internal consistency and discriminant validity of the instrument were assessed. All of the Cronbach's alpha values were over the 0.7 threshold. The refined instrument, in the form of a self-administered questionnaire, was then used to collect the study's data from organizations. Five financial leasing companies were asked to participate in the survey. Out of the 159 responses, 55 responses with incomplete data were eliminated from further analysis. As a result, 104 responses were used in the data analysis.

5.4.2. Analysis Methods

5.4.3. Measurement Model

Following recommended two-stage analytical procedures (Anderson and Gerbing, 1988; Hair et al., 1998), we first assess the measurement model; then, the structural relationships were examined. Content validity, convergent validity, and discriminant validity are tested for measurement model. As shown in Table 5-1, our composite reliability values are good enough for the 0.7 criteria. For the average variance extracted by a measure, a score of 0.5 indicates acceptability (Fornell and Larcker, 1981). Table 5-1 shows that the average variances extracted by our measures are above the acceptability value. In addition, the weights and loadings of the measures in our research model show good results with significance. As expected, all measures are significant on their path loadings at the level of 0.01. Finally, we verified the discriminant validity of our instrument by looking at the square root of the average variance extracted as recommended by Fornell and Larcker (1981). The result in Table 5-1 confirms the discriminant validity: the square root of the average variance extracted for each construct is greater than the levels of correlations involving the construct. In addition to validity assessment, we also checked for multi-

collinearity due to the existence of formative constructs (characteristics of social media). The resultant variance inflation factor (VIF) values for all of the constructs are acceptable.

5.4.4. Structural Model

The results of the analysis are depicted in Figure 5-2 and summarized in Table 5-2. We discuss the results in the following sequence: direct effects of cognitive needs and affective needs, moderating effects on cognitive needs and affective needs.

All direct paths are significant with exceptions of safety concern, and the whole model is accounting for 68 percent of the variance in willingness to seek, resulting 56 percent explained variance of sharing outcome. The results in Figure 5-2 support the hypotheses regarding to all of the effects of cognitive needs on willingness of seeking in terms of knowledge growth, effort of search and information and contract availability. For the affective needs, we found that trust and receptive mood collectively contribute to willingness of seeking at $p < 0.05$, while the path from safety concern is not significant at $p < 0.05$. The attempt of seeking in turn contributes to knowledge sharing outcomes.

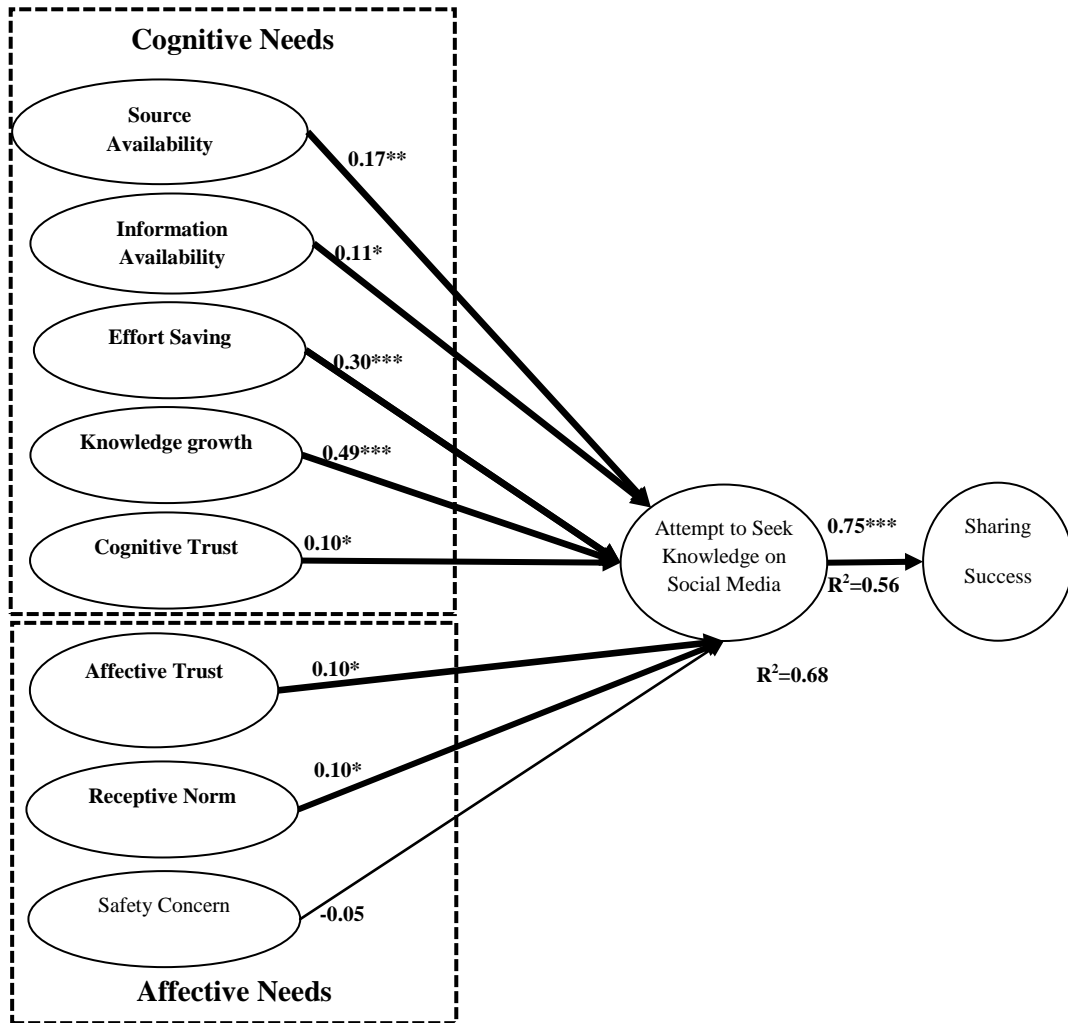
In moderating effects on cognitive needs, as presented in Table 5-2, the moderating effects on the relationships from cognitive need to willingness to seek are significant except for effort concern and knowledge growth. The source availability effect was enhanced when networking facility is high, and information availability effect was increased when content connectivity is high. For the moderating effects on affective needs, all of the hypothesized effects are supported except for safety concern. The effect of cognitive trust was reduced when transparency is high, while the effect of affective trust was enhanced when networking facility is powerful. The effect of receptive mood was enhanced when transparency is high.

Table 5- 1 Reliability and Validity

Construct	Cronbach Alpha	CR	AVE	AT	CT	EFT	AVA	IN	REC	SFT	SA	Success	Willingness
Affective Trust	0.94	0.96	0.89	0.94									
Competence Trust	0.92	0.95	0.87	0.72	0.93								
Effort	0.76	0.86	0.67	0.7	0.66	0.82							
Information Availability	0.90	0.93	0.82	0.55	0.61	0.29	0.91						
Information Needs	0.83	0.89	0.74	0.51	0.61	0.68	0.38	0.86					
Receptive Mood	0.89	0.93	0.82	0.59	0.6	0.71	0.32	0.76	0.91				
Safety	0.94	0.96	0.89	-0.1	-0.05	-0.19	0.02	-0.13	-0.14	0.94			
Source Availability	0.84	0.93	0.86	0.65	0.68	0.66	0.46	0.48	0.48	-0.02	0.93		
Sharing Success	0.92	0.95	0.87	0.62	0.63	0.67	0.48	0.65	0.63	-0.08	0.51	0.93	
Willingness	0.90	0.94	0.84	0.54	0.58	0.67	0.4	0.76	0.73	-0.11	0.47	0.75	0.92

^a Diagonal elements are the square root of Average Variance Extracted.

Contrary to our expectation, safety concern is not the important issue of knowledge seekers concern using social media. One possible explanation is individuals are willing to search and use knowledge from social media due to trust, desire to gain knowledge, and strong receptive feelings toward social media knowledge, less likely to consider his search of knowledge as inferior to others, or acknowledgement of inability to others.



^a All values are: *, significant at p<0.05; **, significant at p<0.01; ***, significant at p<0.001 in two-tailed tests

Figure 5- 2 Results of Knowledge Seeking Model

Table 5- 2 Results of Hypothesized Effects

Hypotheses	Results
Social Capital Needs	
H1a: Information Accessibility→Willingness to Seek	Supported
H1b :Content Integration * Information Accessibility →Willingness to Share	Supported**
H2a: Source Accessibility→Willingness to Seek	Supported
H2b: Networking Facility* Source Accessibility →Willingness to Seek	Supported*
H3a: Effort Saving→Willingness to Seek	Supported
H3b: Transparency*Effort Saving→Willingness to Seek	Not Supported
H4a: Knowledge Growth→Willingness to Seek	Supported
H4b: Transparency * Knowledge Growth →Willingness to Seek	Not Supported
H5a: Cognitive Trust→Willingness to Seek	Supported
H5b: Transparency* Cognitive Trust →Willingness to Seek	Supported*
Social Cognitive Needs	
H6a: Affective Trust→Willingness to Seek	Supported
H6b: Networking Facility * Affective Trust→Willingness to Seek	Supported*
H7a: Receptive Mood→Willingness to Seek	Supported
H7b: Transparency*Receptive Mood → Willingness to Seek	Supported***
H8a: Safety Concern→Willingness to Seek	Not Supported
H8b: Transparency*Safety Concern→Willingness to Seek	Not Supported

^a All values are: *, significant at p<0.05; **, significant at p<0.01; ***, significant at p<0.001 in two-tailed tests

Table 5- 3 Structural Estimate of Moderation Effects

Moderation Path/ Hypothesis	Knowledge Seeking Willingness	
	Path coefficient	t value
H1b :Content Integration * Information Accessibility →Willingness to Seek	0.152	2.11*
H2b: Networking Facility* Source Accessibility →Willingness to Seek	0.198	2.07*
H3b: Transparency*Effort Saving→Willingness to Seek	-0.029	0.32
H4b: Transparency * Knowledge Growth →Willingness to Seek	0.006	0.46
H5b: Transparency* Cognitive Trust →Willingness to Seek	0.185	1.98*
H6b: Networking Facility * Affective Trust→Willingness to Seek	0.207	2.24*
H7b: Transparency*Receptive Mood → Willingness to Seek	0.327	3.83***
H8b: Transparency*Safety Concern→Willingness to Seek	0.090	1.02

^a All values are: *, significant at p<0.05; **, significant at p<0.01; ***, significant at p<0.001 in two-tailed tests

5.5. Discussion and Implications

This study adds to the collective understanding of factors influencing knowledge seeking behavior on social media. Accordingly, we (1) surfaced a number of key social media characteristics matter to knowledge seeking; (2) tested the interaction effects of social media characteristics and knowledge seeking needs.

A noted advantage of social media over other traditional communication channels is that collaborative thinking is fostered. This collaborative thinking is enabled by set of social media characteristics, namely transparency, interactivity, networking facility and content integration. Generally, it can be noted that among different uses and applications of social media such as connecting with friends and sharing opinions, an important mode of communication is the answering of questions. An information seeker gets answers, sometimes partial, from other users and deduces best solutions from these. Examples and illustrations, on real social media platforms, are helpful to drive in-depth understanding of its value.

For instance, on LinkedIn, interactivity, featured by a feedback mechanism (e.g., voting), helps the seeker in finding the best solution. Instant

messaging allows users of the social network to view who is currently online and open a direct line of communication with another user. This direct line of communication may result in rapid responses that help everyone complete their work more efficiently. Transparency, manifested by user profiles, allows users to search for colleagues. Searching for colleagues offers users the chance to connect with colleagues they do not know directly. By getting in touch with colleagues outside of the user's general contacts, the user may be able to receive helpful feedback or advice from someone in a particular department. Microblogging allows users to post general questions or comments to various forums, such as the user's wall, someone else's wall, a subject, or a community. With this feature, the user may open a contextual dialogue on a particular topic of interest with other users in the company's social network.

An individual's willingness toward knowledge seeking on social media is driven primarily by cognitive and affective needs. The underling rationale of these observations draws upon the interaction effects between the characteristics of social media and these factors. The characteristics of transparency intensify the salience of receptive mood and alleviate the effects of trust on social media. Exposed in a platform of high transparency, trust was able to be built before and during knowledge seeking process so that the need of trust to promote seeking willingness was no longer that prominent. The effect of receptive mood on seeking willingness was intensified if knowledge seeker perceives social media to be transparent.

The networking facility exerts a strong intensifying influence on the need for the formation of affective trust towards knowledge seeking; it also affects (although reducing) the relationship between source availability and knowledge seeking behaviors. In an environment where people can easily connect with an enormous amount of contact, trust is necessary to lead to a potential knowledge seeking and acceptance. In the meantime, difficulty to find connections may not face knowledge seeker so that the concern of source availability will not be on top priority. With social networking tool, employees can follow whoever they need to follow, search for subject-matter experts and get updates from the business, so as to spend less time in meetings, searching files, or waiting for the answers from others. Social networking also facilitates

decision making. Saving those times asking a colleague a question or gather everyone for a meeting before one could decide the next step. Social networking connects the right stakeholders. So no matter whether employees are in SharePoint, Box.com, email or even on their mobile device, they should be able to weigh in and speed up business outcomes.

The content integration of social media exerts a strong intensifying influence on receptive norm towards knowledge seeking; it also affects (although reducing) the relationship between information availability and knowledge seeking behaviors. Exposed to a large amount of information pieces, receptive mood of knowledge seeker is the basis to further explore the possible application of the information. For example, an internal social network, integrated with Microsoft SharePoint, which makes it possible for employees to send and receive valuable content without leaving the social networking platform. Employees find the information is integrated and contextual to his own interest, easy to use and are more than willing to take in.

In addition, we provided additional evidence that, on social media, the characteristics of social media are likely to affect the willingness of seeking indirectly through interacting with cognitive and affective needs. Secondly, our results shows-to the best of our knowledge, for the first time within social media study-that the characteristics of social media were studied thoroughly. Last but not least, we are among the pioneer to uncover the business value of social media to internal collaboration by explicating the interaction between psychological and technical factors.

5.6. Conclusion

Based on our findings, firstly, to emphasize efforts to nurture the transparency, networking facility and content connectivity of the knowledge sharing mechanism, is important. In particular, fostering tools characterized by high levels of these characteristics is likely to promote knowledge seeking behaviors that are apparently important in ultimate knowledge sharing success. Secondly, it is important to actively support the formation and maturation of receptive mood in the online community. Cognitive rewards perform as primary motivators within knowledge seeking initiatives on social media.

Effective knowledge sharing on social media cannot be forced or mandated. Knowledge seeking cannot be put aside when firms would like to improve knowledge sharing outcome. Firms desiring to foster knowledge-sharing behaviors could create facilitative sharing contexts via social media. We surface cognitive and affective drivers associated with knowledge seeker's willingness to seek knowledge from others on social media. Moreover, certain characteristics should be emphasized to intensify facilitators or mitigate barriers towards effective knowledge seeking outcome.

Chapter 6

Conclusions and Contributions

6.1. Overview

The importance of proper design and use of appropriate knowledge sharing mechanisms to the success of knowledge sharing is well established (Rigby et al., 2002; Malhotra, 2003). There is a need to understand the characteristics and roles that knowledge sharing mechanisms play in knowledge sharing. Researchers and practitioners have spent great effort to identify the proper balance of knowledge management strategies (e.g., Jasimuddin et al., 2005; Mukherji, 2005). This thesis presents three studies that aim to address two major issues. In particular, it aims to further our understanding of the effects of both technical and social influences on knowledge sharing mechanism use, from the traditional knowledge sharing mechanisms to the new advent of social media. In practice, knowledge sharing mechanism designers can create desired characteristics that leverage users' knowledge contributions and seeking willingness through fulfilling their needs. This chapter is organized as follows. Section 6.2 summarizes the findings of the three studies. An overview of the thesis is presented in Table 6-1 illustrating how the research objectives have been addressed with the main findings in each study. Section 6.3 describes the contributions for academic communities and the practical implications. Section 6.4 presents the limitations of this research. Finally, Section 6.5 suggests future research opportunities in knowledge sharing mechanisms.

6.2. Research Findings

The research objective of the first study was to provide a holistic view of knowledge sharing mechanism selection and adoption with empirical support. From the perspective of practice, it gave clear and concrete recommendations to managers on how to design their knowledge sharing mechanism portfolios. Firstly, this study proposed a framework that connects the technical characteristics of knowledge sharing mechanisms with specific knowledge sharing stages for better intra-firm knowledge sharing. Survey results

confirmed the hypotheses that mechanisms with a high degree of Reach are more likely to be used at the awareness stage, while mechanisms with a high degree of Richness are more likely to be used at the transfer stage. Secondly, this study shed some light on what interventions management should put in place to foster mechanism adoption. The results showed that social influences indirectly affect intention to select. Specifically, subjective norm intensified the relationship between perceived usefulness and intention to use, although this only partially held for the mechanism of high Reach, the best practice newsletter. The results also suggested that managers should improve social support for the knowledge sharing mechanism by increasing users' perception of the mechanism's usefulness. Overall, this study represents a systematic approach to understanding and predicting knowledge sharing mechanism selection behavior within an integrative model.

The theoretical foundations upon which the second and the third studies are built were laid in Chapter 3. We adopted a holistic view that explains both knowledge contribution and seeking willingness and their antecedents in a social media context. This holistic view remedies the long-held unbalanced view in the knowledge sharing literature with a concentration on knowledge contribution (Orlikowski, 1993; Constant et al., 1994; Wasko and Faraj, 2000; Bock et al., 2005). When investigating knowledge sharing willingness in a social media context, it might be problematic to rely on the assumptions of rational choice, both for knowledge contributors and knowledge seekers. However, if we take a critical look at the prior literature on knowledge sharing in virtual communities, rationalism is pervasive and accounts for the majority of studies, with some exceptions (e.g., Wasko and Faraj, 2000). At the end of Chapter 3, we developed a cognitive-affective framework that categorized the factors affecting knowledge contribution and knowledge seeking willingness.

The second study attempted to address the question of what roles social media plays in knowledge contribution. Drawing from social capital theory and social cognitive theory, it proposed a cognitive-affective categorization of the needs for knowledge contribution, including important emotional factors, and then tested the effects of the needs using survey results from five financial services companies in China. In addition, what roles the new advent of social

media plays in knowledge contribution by interacting with cognitive and affective factors were investigated. Survey results found significant effects of social affective needs on willingness of contribution in terms of trust, altruism, safety concern and enjoyment. The cognitive needs of reciprocity expectation, self-worth and community identity showed significant influences on knowledge contribution willingness using social media. Transparency moderates the relationship from cognitive needs — self-worth, privacy concern, reciprocity expectation and reputation attainment— to willingness to contribute. For affective needs, the effect of trust was reduced when transparency was high. Similar to self-worth, trust was put in place in a transparent social media community and resulted in a decrease in the effect of trust. Interactivity played a significant moderating role on affective needs, specifically on trust, safety concern and altruism. The effect of trust was enhanced when interactivity was high, while the effect of safety concern was lower when interactivity was prominent.

The objective of the third study was to add to the understanding of knowledge seekers' needs on social media. Accordingly, we took the following steps: (1) we surfaced a number of potentially salient cognitive and affective factors; (2) we applied these as antecedents to the willingness to seek knowledge on social media; (3) we introduced the interaction effects of social media characteristics on cognitive as well as affective needs; and (4) we supported most of the relationships through a survey of knowledge workers in Chinese organizations. Collectively, we believe there is significant contribution to the collective understanding of why a knowledge seeker is willing or not to seek knowledge on social media platforms.

6.3. Contributions and Implications

This thesis contributes to the research literature in the area of knowledge sharing and knowledge management. Compared to previous studies, it offers high construct validity of the scales, strong research findings and high explanatory power. It also makes contributions to the theoretical perspectives and provides important implications for practice.

6.3.1. Theoretical Contributions

We present three major theoretical contribution this thesis made to existing knowledge base, first on knowledge sharing literature, second on information system research, and third on social media research. First of all, study 1 points to the importance of eschewing a strictly technical perspective on the deployment of knowledge sharing mechanisms. This empirical research would contribute to the long-held debate on having technical, interpersonal or both mechanisms to facilitate knowledge sharing. The study 1 resonated with the belief that technology is not the panacea to facilitate knowledge sharing (e.g., Swan et al., 2000; Rigby et al., 2002; Malhotra, 2003; Chua and Lam, 2005; Chai and Nebus, 2012). It identified the significance of richness in knowledge transfer process. As information technology develops, organizations continue to focus on more appealing technical tools; however, it should be noted that the importance of traditional face-to-face meetings is motivating in terms of cognitive considerations such as more social clues and vivid interactions.

This work contributes to the understanding of how knowledge awareness and knowledge transfer can be facilitated using knowledge sharing mechanisms by drawing on the aspects of Reach and Richness. The prescriptions about the deployment of knowledge sharing mechanisms are to establish a balanced Reach and Richness portfolio. According to the stages of the knowledge sharing process, high Reach is preferred at the awareness stage, while high Richness is preferred at the subsequent transfer stage. The first study enriches the media richness studies by taking the characteristics of Reach into consideration, which are useful for creating awareness, in addition to the well-recognized characteristic of the Richness mechanism. Discussions on knowledge management have often centered on the need to have a rich medium for knowledge transfer, especially for tacit knowledge (e.g., De Long and Seemann, 2000; Chai et al., 2003). The notion of Reach completes the effect of Richness on knowledge sharing mechanism selection. This is an important contribution as, thus far, not much work has been done to understand how knowledge awareness can be facilitated using knowledge sharing mechanisms (e.g., Thompson et al., 1999; Moreland, 2006).

In view of the prior studies on Reach and Richness (e.g., Chai et al., 2003), the first study extends the research by addressing the critical issues related to the psychometric properties of the set of constructs. After refining the questionnaire items, we achieved a valid and verifiable way of measuring the Reach and Richness of two exemplary knowledge sharing mechanisms, BNP and TOP. The results of our data analysis provide strong support for the measurement properties and usefulness of our instrument. The measurement of constructs can be reused and adapted by future studies.

Secondly, study 1 builds on established information system theories, like TAM and TPB, and provides new insight on how these two perspective are integrated. Moreover, the interaction of technical characteristics and organizational environment was investigated into details. We explicate the effect of social norm as well as internal and external facilitation condition over technical characteristics. The first study (i.e., Chapter 2) drew from the vast body of research on TAM and TPB and developed an integrated model of the determinants of knowledge sharing mechanism adoption intention at the individual level. In line with TAM research, this study specified the perceived usefulness by Reach and Richness and expanded the dimensions of knowledge sharing mechanism characteristics. The impact of perceived usefulness was differentiated across the knowledge sharing stages, i.e., between the awareness stage and the transfer stage. It advanced our understanding by identifying the reasons behind the perceived usefulness variables. In the previous TAM research, the underlying reasons are obscure due to the lack of adequate specification (Venkatesh and Bala, 2008).

Drawing upon an integrative framework of TAM and TPB, the first study contributes to the technology adoption literature by shedding light on the black box of how technical characteristics intertwine with organizational environment. This research effort called by Venkatesh and Morris (2000) to complete the boundary conditions of system characteristics. The technology acceptance model (TAM) (Davis, 1986) and the theory of planned behavior (TPB) (Ajzen, 1985; 1991), as important lines of research, have influenced the research on the implementation of knowledge management technology. While the direct effects of technical and social factors have been studied and found to

have conclusive roles and considerable impacts, the interrelationships between technical constructs, which are reflected by perceived system characteristics, and social variables, which consider social influences, are inconclusive (Schepers and Wetzels, 2007). In the first study (i.e., Chapter 2), we found that the effects of perceived usefulness of knowledge sharing mechanisms are bounded by social and facilitating conditions.

Last but not least, social media research is a brand new domain for academic and practitioner to explore. Study 2 and study 3, collectively, put together the marble pieces to understand social media's value towards knowledge sharing. Most of the prior research on knowledge sharing needs did not consider both the cognitive and affective perspectives in one study. Social media is a group phenomenon where an individual's behavior is influenced by one's perceptions of himself as well as by others in his social network. Thus, emphasizing an individual's rational consideration is not enough to capture the underlying influences that social media brings to a participant. Rather, it is the rational and emotional perceptions towards situations and the group atmosphere that drives an individual to make a sharing or seeking choice. One of the significant contributions of this research is to adopt a cognitive-affective approach and examine knowledge contribution needs, as well as knowledge seeking needs, in a complete view. With a comprehensive view of individual needs towards knowledge contribution and knowledge seeking in social media, knowledge management practitioners of social media can provide appropriate benefits to fit users' needs.

Moreover, the second and the third studies (Chapter 4 and Chapter 5), collectively, made a contribution by developing measures of social media characteristics that are specific to the examination of the use of knowledge sharing mechanisms. To date, there are no validated scales for most of the constructs with regards to the technical characteristics of social media. The measures of the characteristics, namely transparency, networking facility, content integration and interactivity, were developed as formative constructs due to the nature of their multi-facet concepts.

Further, we identified two key characteristics of social media that show significant impacts on knowledge contribution, namely transparency and interactivity. In our examination of the path from privacy to willingness to contribute in social media, it was found that, when transparency is high, the concern of privacy is more likely to affect the willingness to contribute. Thus, the privacy concern is reinforced in social media when the knowledge contributor is exposed to a highly transparent environment. The effect that self-worth imposes on willingness to contribute is enhanced when transparency is high. This result implies that the sense of self-worth is enhanced in a highly transparent community. The reputation attainment effect is enhanced when transparency is high, and so is the effect of reciprocity expectation. This implication is in line with prior literature findings that reputation and reciprocity are compensated by transparency (Kanagaretnam et al., 2010).

Finally, an individual's willingness towards knowledge seeking in social media is driven primarily by cognitive and affective needs. The characteristics of transparency intensify the salience of receptive mood and alleviate the effects of trust. When exposed by a platform of high transparency, trust is able to be built before and during the knowledge seeking process so that the need for trust to promote seeking willingness is no longer that prominent. The effect of receptive mood on seeking willingness is intensified if the knowledge seeker perceives social media to be transparent.

The characteristics of networking facility exert a strong intensifying influence on the need for the formation of affective trust towards knowledge seeking; it also affects the relationship between source availability and knowledge seeking behaviors, albeit a reducing effect. In an environment where people can easily connect with an enormous amount of information sources, trust is the pre-condition that leads to potential knowledge seeking and knowledge acceptance. Difficulty finding connections is not currently a major problem for knowledge seekers, so the concern of source availability is not a top priority.

The content integration of social media exerts a strong intensifying influence on the need for the formation of a receptive norm towards knowledge seeking; it also affects the relationship between information availability and knowledge seeking behaviors, albeit a reducing effect. Exposed to a large amount of information, the receptive mood of the knowledge seeker is the basis for further exploration of the possible applications of that information. A lack of information sources is not currently a problem that frustrates knowledge seekers, so information availability is not a top concern.

6.3.2. Practical Implications

The first study (i.e., Chapter 2) presents a knowledge sharing mechanism adoption model which describes a concrete set of factors that managers might manipulate to facilitate knowledge sharing. Managers and practitioners are given clear and concrete recommendations on how to design their knowledge sharing mechanism portfolios. To boost bottom-up knowledge sharing, managers need to keep a balance in the knowledge sharing mechanism portfolio, deploying mechanisms with high degrees of Reach or Richness properly. When help, members in the organization will learn the presence and location of reusable knowledge; mechanisms with a high degree of Reach are helpful for this. Mechanisms with a high degree of Richness will then enable members in the organization to transfer the knowledge effectively.

Secondly, Chapter 2 presents advice focused on potential post-implementation interventions that can enhance employees' adoption and use of knowledge sharing mechanisms. The effects of the Reach and Richness of knowledge sharing mechanisms are bounded by social and facilitating conditions. The understanding of contingencies enabled by social influences and facilitating conditions, is helpful to technology routinization through proper organizational intervention. Survey results partially confirm the hypotheses that the effects of Reach and Richness are intensified in highly supportive environments towards the use of the mechanism. From a practice perspective, subjective norm plays an extremely important role towards usage intention, including direct influence and indirect moderating effects. It also implies that the advantages of technical advancement may lose ground with

less support from peers and management in organizations. Thus, managers who desire to successfully implement new knowledge sharing mechanisms need to be cognizant of this relationship and strive to encourage a more favorable social environment to enhance the personal perception of usefulness on the knowledge sharing mechanism.

The second study (i.e., Chapter 4) provides guidance for increasing the number of social media tools that are implemented within organizations. This is important because managers in knowledge-intensive firms increasingly need to better understand how to facilitate knowledge sharing across organizational boundaries by tapping into the resources enabled by social media. The arduousness of the relationship between knowledge contributors and knowledge seekers is important and, in practice, must be reduced. This suggests that it is important to create an environment where contributor-seeker pairs can, and must, interact frequently, thereby nurturing their trust and facilitating the flow and a more valid interpretation of knowledge. The characteristics of transparency and interactivity are helpful in such a context.

In terms of knowledge contribution, affective motivation is found to be relatively more important than cognitive motivation. Thus, the use of incentives and other explicit rewards is not indicated, except perhaps in the initial stages of implementation (O'Dell and Grayson, 1998). As such, the results suggest that it is important to devote resources to fostering affective motivators for knowledge contribution. In other words, rational extrinsic cognition may not aid in effectively contributing knowledge; rather, affectively motivated individuals are needed to go the extra mile, especially when tacit knowledge, which is so prevalent in complex implementation projects, is involved.

By focusing on the technical characteristics of social media, the third study (Chapter 5) developed a model that addresses how to overcome the knowledge sharing barriers for better knowledge seeking willingness. With a reliable and valid index model of social media characteristics, namely transparency, interactivity, networking facility and content incorporation, we have provided empirical evidence that, when the knowledge seeking behavior

being studied is via social media, the characteristics of social media are likely to indirectly affect the willingness of seeking by interacting with cognitive and affective needs. Second, to the best of our knowledge, this is the first social media study where the characteristics of social media are studied thoroughly. With a high volume of user participation, the explosion of social media offers managers a new medium to facilitate knowledge sharing. Managers can find value in keeping knowledge workers on these social media sites, or at least no longer eschewing the value of these tools.

6.4. Limitations

Although the findings presented in this thesis are encouraging and useful, the three studies have certain limitations. First, whether our findings can be generalized to all types of knowledge sharing mechanisms is unclear. In the first study (i.e., Chapter 2), we chose two mechanisms, one with high reach and one with high richness, to test the prominent causal relationship in each knowledge sharing stage. Although this does not limit the study to the investigated mechanisms, either high in Reach or high in Richness, the findings of these two mechanisms are somewhat inconsistent for the moderation effects. For example, the moderation effect of subjective norm was supported with the mechanism of best practice newsletter, while it was not supported by transfer of people. It is necessary to test knowledge sharing mechanisms with high Reach and high Richness to evaluate the moderation effects. For example, a webinar, as a specific type of web conference, is collaborative and allows full participation and interaction between the audience and the presenter, making it high in both reach and richness.

For the second and the third studies (i.e., Chapter 4 and Chapter 5), we note that our findings should be interpreted in light of the studies' limitations. First, as the data is cross-sectional and not longitudinal. Second, data collection was limited to organizations in the financial leasing industry. Third, our findings may be affected by self-reported bias, although we have implemented measures to mitigate the common method bias. Finally, the field data for the second and the third studies was drawn from organizations in the

initial and intermediate stages of social media implementation (though none were very mature). Therefore, the results may only be generalizable across these stages of maturity.

The applicability of our conceptual models and theoretical perspectives are validated and assessed in organizations in an Asia-Pacific context. The field data from the first study draws from different industry sectors and, therefore, the results should be generalizable across these sectors. The data from the second and the third studies (Chapter 4 and Chapter 5) is from the financial industry, a knowledge-intensive sector, which is always an exemplar research context for knowledge management studies.

6.5. Directions for Future Research

Our research has provided a number of opportunities for future investigations. In the first study (Chapter 2), the results shed light on knowledge sharing mechanism selection. Continued research is needed to investigate the constructs accounting for the remaining unexplained variance in behavioral intention. These additional constructs may include individual factors such as self-efficacy (Compeau and Higgins, 1995; Venkatesh and Davis, 1996; Compeau et al., 1999), perceived voluntariness (Agarwal and Prasad, 1997), user characteristics (Igarria et al., 1997). In addition, organizational context factors (e.g., user participation and involvement) (Hartwick and Barki, 1994) may possibly enhance the explanatory power of the knowledge sharing mechanism selection intention model. An alternative could be testing new models or theories towards an understanding of knowledge sharing mechanism selection. Innovation diffusion theory (Rogers, 1995) and social network theory (Robertson, 1989) and their integration with TAM and TPB can be employed to improve our understanding (Mathieson, 1991). Furthermore, replicating the study of our theoretical models using longitudinal designs might enhance our understanding. Also, a series of studies that target a variety of professional contexts, as differentiated by knowledge sharing mechanisms, or the user groups, are desirable.

The second and the third studies (i.e., Chapter 4 and Chapter 5) suggest plenty of opportunities for future research. Our studies were conducted with a

focus on exemplary social networking services (e.g., Weibo). Whether our findings can be generalized to all types of social media (e.g., blogs, wikis, media sharing, virtual games) is unclear. Knowledge sharing in social networking services might be different from that of other social media applications because social media keeps evolving. Further research is necessary to verify the generalizability of our findings. Moreover, the data presented in our studies is cross-sectional. Knowledge sharing using social media is an ongoing phenomenon. Ideally, knowledge sharing needs and the characteristics of social media should be measured in a longitudinal context rather than at a static point. Finally, our second and third studies were conducted in China. Future research efforts could replicate the study of our theoretical models in other national and cultural settings.

Table 6- 1 Overview of Contributions and Implications

Two Major Research Objective	Research Objectives	Studies	Research Findings	Contributions & Implications
To achieve a comprehensive understanding of knowledge sharing mechanism adoption and selection	<ol style="list-style-type: none"> <li data-bbox="421 443 806 603">1. This study aims to provide clear, organized and integrated advices on when to choose what mechanisms in knowledge sharing process. <li data-bbox="421 635 806 871">2. To further the understanding, the moderation effects of social influences, perceived behavior control on technical characteristics towards knowledge sharing selection are investigated. 	Chapter 2 (Study 1)	<ul style="list-style-type: none"> <li data-bbox="985 443 1536 571">• Mechanisms with a high degree of Reach are more likely to be used at the awareness stage, while mechanisms with a high degree of Richness are more likely to be used at the transfer stage. <li data-bbox="985 579 1536 699">• Subjective norm intensifies the relationship between perceived usefulness and intention to use, although they only partially hold for the mechanism of high Reach, the best practice newsletter. <li data-bbox="985 707 1536 826">• Overall, this study represents a systematic approach to understanding and predicting knowledge sharing mechanism selection behavior within an integrative model. 	<ul style="list-style-type: none"> <li data-bbox="1559 443 2020 635">• This work contributes to the understanding of how knowledge awareness and knowledge transfer can be facilitated using knowledge sharing mechanism by drawing on Reach and Richness aspects respectively. <li data-bbox="1559 643 2020 826">• Drawing upon an integrative framework of TAM and TPB, the first study contributes technology adoption literature by shedding lights on the black box of how technical characteristics intertwine with organizational environment.
To Explicate the Characteristics and Roles of Social Media in Knowledge Sharing	<ol style="list-style-type: none"> <li data-bbox="421 887 806 1015">1. To identify the key needs of knowledge contributor and knowledge seeker in a cognitive-affective framework 	Chapter 3 (Literature Review)	<ul style="list-style-type: none"> <li data-bbox="985 887 1536 983">• We reach a balanced view that both explains knowledge contribution and seeking willingness and their antecedents in social media context. <li data-bbox="985 991 1536 1078">• We developed a cognitive-affective framework that categorized factors affecting knowledge contribution and knowledge seeking willingness. 	<ul style="list-style-type: none"> <li data-bbox="1559 887 2020 983">• The research framework on knowledge sharing needs consider both cognitive and affective perspectives in one study. <li data-bbox="1559 991 2020 1046">• It characterized social media features into four key characteristics. <li data-bbox="1559 1054 2020 1134">• It achieved a balanced view of knowledge contribution and knowledge seeking needs in social media.

	<p>2. To examine the effects that knowledge contribution needs are catered by social media characteristics</p>	<p>Chapter 4 (Study 2)</p>	<ul style="list-style-type: none"> • Social affective needs significantly affect willingness of knowledge contribution, in terms of trust, altruism, safety concern and enjoyment. • The cognitive needs of reciprocity expectation, self-worth and community identify show significant influences on knowledge contribution willingness using social media. • Transparency moderates the relationship from cognitive needs -self-worth, privacy concern, reciprocity expectation and reputation attainment- to willingness to contribute, as well as the affective needs, such as trust. • Interactivity plays significant moderating roles on affective needs, specifically on trust, safety concern and altruism. 	<ul style="list-style-type: none"> • The second study provides guidance for the increasing number of social media that are being implemented within organizations to foster knowledge contribution. • It is important to create an environment where contributor-seeker pairs can, and must, interact frequently, thereby nurturing their trust and facilitating the flow and more valid interpretation of knowledge. The characteristics of transparency and interactivity are helpful in such context. • The arduousness of the relationship between knowledge contributor and knowledge seeker is important and, in practice, must be reduced. • Affective motivation was found to be relatively more important than cognitive motivation.
	<p>3. To identify the interaction effects of the social media characteristics on knowledge seeking behaviors</p>	<p>Chapter 5 (Study 3)</p>	<ul style="list-style-type: none"> • We surfaced a number of potentially salient cognitive and affective factors. • We applied these as antecedents to the willingness to seek knowledge on social media. • The results show the significant interaction effects of social media characteristics on cognitive as well as affective needs. 	<ul style="list-style-type: none"> • The third study reached a model that addresses how to overcome the knowledge sharing barriers for better knowledge seeking willingness. • Our results shows- to the best of our knowledge, for the first time within social media study- that the characteristics of social media were studied thoroughly.

Reference

- Abraham, C., P. Sheeran and M. Johnston (1998). "From health beliefs to self-regulation: Theoretical advances in the psychology of action control." Psychology and Health 13(4): 569-591.
- Adler, P. S. (2001). "Market, hierarchy, and trust: the knowledge economy and the future of capitalism." Organization Science 12(2): 215-234.
- Agarwal, N. (2009). Social computing in blogosphere, Arizona State University.
- Agarwal, R., D. Audretsch and M. Sarkar (2008). "The process of creative construction: knowledge spillovers, entrepreneurship, and economic growth." Strategic Entrepreneurship Journal 1(3-4): 263-286.
- Agarwal, R. and J. Prasad (1997). "The role of innovation characteristics and perceived voluntariness in the acceptance of information technologies." Decision sciences 28(3): 557-582.
- Aguinis, H., J. C. Beaty, R. J. Boik and C. A. Pierce (2005). "Effect size and power in assessing moderating effects of categorical variables using multiple regression: a 30-year review." Journal of Applied Psychology 90(1): 94.
- Aiken, L. S. and S. G. West (1991). Multiple regression: Testing and interpreting interactions, Sage.
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior, Springer.
- Ajzen, I. (1991). "The theory of planned behavior." Organizational behavior and human decision processes 50(2): 179-211.
- Anderson, J. C. and D. W. Gerbing (1988). "Structural equation modeling in practice: A review and recommended two-step approach." Psychological bulletin 103(3): 411.
- Ardichvili, A., R. Cardozo and S. Ray (2003). "A theory of entrepreneurial opportunity identification and development." Journal of Business Venturing 18(1): 105-123.
- Argyris, C. (1982). Reasoning, learning, and action: Individual and organizational, Jossey-Bass San Francisco.

Armitage, C. J. and M. Conner (2001). "Efficacy of the theory of planned behaviour: A meta-analytic review." British journal of social psychology 40(4): 471-499.

Arrow, K. J. (1972). "Gifts and exchanges." Philosophy & Public Affairs: 343-362.

Ba, S., J. Stallaert and A. B. Whinston (2001). "Research commentary: introducing a third dimension in information systems design—the case for incentive alignment." Information systems research 12(3): 225-239.

Bagozzi, R. P. (1982). "A field investigation of causal relations among cognitions, affect, intentions, and behavior." Journal of marketing research: 562-583.

Bagozzi, R. P., F. D. Davis and P. R. Warshaw (1992). "Development and test of a theory of technological learning and usage." Human relations 45(7): 659-686.

Bagozzi, R. P. and U. M. Dholakia (2002). "Intentional social action in virtual communities." Journal of interactive marketing 16(2): 2-21.

Bandura, A. (1977). "Self-efficacy: toward a unifying theory of behavioral change." Psychological review 84(2): 191.

Bandura, A. (1989). "Human agency in social cognitive theory." American psychologist 44(9): 1175.

Barclay, D., C. Higgins and R. Thompson (1995). "The partial least squares (PLS) approach to causal modeling: personal computer adoption and use as an illustration." Technology studies 2(2): 285-309.

Bargh, J. A. and K. Y. A. McKenna (2004). "The Internet and social life." Annu. Rev. Psychol. 55: 573-590.

Bartol, K. M. and A. Srivastava (2002). "Encouraging knowledge sharing: the role of organizational reward systems." Journal of Leadership & Organizational Studies 9(1): 64-76.

Berends, H., H. Bij, K. Debackere and M. Weggeman (2006). "Knowledge sharing mechanisms in industrial research." R&d Management 36(1): 85-95.

Bergami, M. and R. P. Bagozzi (2000). "Self-categorization, affective commitment and group self-esteem as distinct aspects of social identity in the organization." British Journal of Social Psychology 39(4): 555-577.

Blau, P. M. (1964). Exchange and power in social life, Transaction Publishers.

Blumberg, M. and C. D. Pringle (1982). "The missing opportunity in organizational research: Some implications for a theory of work performance." Academy of Management review 7(4): 560-569.

Bock, G.-W., R. Sabherwal and Z. Qian (2008). "The effect of social context on the success of knowledge repository systems." Engineering Management, IEEE Transactions on 55(4): 536-551.

Bock, G.-W., R. W. Zmud, Y.-G. Kim and J.-N. Lee (2005). "Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate." MIS quarterly: 87-111.

Bock, G. W. and Y.-G. Kim (2002). "Breaking the myths of rewards: An exploratory study of attitudes about knowledge sharing." Information Resources Management Journal (IRMJ) 15(2): 14-21.

Bock, G. W. and Y. G. Kim (2002). "Breaking the myths of rewards: An exploratory study of attitudes about knowledge sharing." Information Resources Management Journal (IRMJ) 15(2): 14-21.

Bollen, K. and R. Lennox (1991). "Conventional wisdom on measurement: A structural equation perspective." Psychological bulletin 110(2): 305.

Bollen, K. A. (1989). "A new incremental fit index for general structural equation models." Sociological Methods & Research 17(3): 303-316.

Borgatti, S. P. and R. Cross (2003). "A relational view of information seeking and learning in social networks." Management Science 49(4): 432-445.

Boyd, D. (2008). "Facebook\'s Privacy Trainwreck." Convergence: The International Journal of Research into New Media Technologies 14(1): 13-20.

Braganza, A., R. Hackney and S. Tanudjojo (2009). "Organizational knowledge transfer through creation, mobilization and diffusion: a case analysis of InTouch within Schlumberger." Information Systems Journal 19(5): 499-522.

Brown, J. S. and P. Duguid (2000). "Balancing act: How to capture knowledge without killing it." Harvard business review 78(3): 73-80.

Bughin, J. and J. Manyika (2007). "How businesses are using Web 2.0: A McKinsey global survey." McKinsey Quarterly Web Exclusive. McKinsey and Company.

Burt, R. S. (1983). "Range." Applied network analysis: 176-194.

Burt, R. S. (1992). "V The Social Structure of Competition."

Butler, B. S. and L. Sproull (2002). "L., Kiesler, S. and Kraut, R.(2002) Community Effort in Online Groups: Who Does the Work and Why." Leadership at a distance. Mahwah, NJ: Erlbaum.

Cabrera, E. F. and A. Cabrera (2005). "Fostering knowledge sharing through people management practices." The International Journal of Human Resource Management 16(5): 720-735.

Chai, K.-H., M. Gregory and Y. Shi (2003). "Bridging islands of knowledge: a framework of knowledge sharing mechanisms." International Journal of Technology Management 25(8): 703-727.

Chai, K.-H. and J. Nebus (2012). "Personalization or Codification? A Marketing Perspective to Optimize Knowledge Reuse Efficiency." Engineering Management, IEEE Transactions on 59(1): 33-51.

Chau, P. Y. and P. J. H. Hu (2001). "Information technology acceptance by individual professionals: A model comparison approach*." Decision sciences 32(4): 699-719.

Chin, W. W. (1998). "Commentary: Issues and opinion on structural equation modeling." MIS quarterly: vii-xvi.

Chiu, C.-M., M.-H. Hsu and E. T. Wang (2006). "Understanding knowledge sharing in virtual communities: an integration of social capital and social cognitive theories." Decision Support Systems 42(3): 1872-1888.

Chiu, C. M., M. H. Hsu and E. T. G. Wang (2006). "Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories." Decision support systems 42(3): 1872-1888.

Choo, C. W. (2001). "Environmental scanning as information seeking and organizational learning." Information Research 7(1): 7-1.

Chua, A. and W. Lam (2005). "Why KM projects fail: a multi-case analysis." Journal of Knowledge Management 9(3): 6-17.

Coenen, T., D. Kenis, C. Van Damme and E. Matthys (2006). Knowledge sharing over social networking systems: Architecture, usage patterns and their application. On the Move to Meaningful Internet Systems 2006: OTM 2006 Workshops, Springer.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences, Routledge.

Coleman, J. S. (1988). "Social capital in the creation of human capital." American journal of sociology: 95-120.

Compeau, D., C. A. Higgins and S. Huff (1999). "Social cognitive theory and individual reactions to computing technology: a longitudinal study." MIS quarterly: 145-158.

Compeau, D. R. and C. A. Higgins (1995). "Application of social cognitive theory to training for computer skills." Information systems research 6(2): 118-143.

Compeau, D. R. and C. A. Higgins (1995). "Computer self-efficacy: Development of a measure and initial test." Mis Quarterly: 189-211.

Conner, M. and P. Sparks (1996). "Applying the theory of planned behaviour." Social cognition in health: Predicting behaviour: 121-161.

Constant, D., S. Kiesler and L. Sproull (1994). "What's mine is ours, or is it? A study of attitudes about information sharing." Information Systems Research 5(4): 400-421.

Constant, D., L. Sproull and S. Kiesler (1996). "The kindness of strangers: The usefulness of electronic weak ties for technical advice." Organization Science 7(2): 119-135.

Cool, C. and H. Xie (2000). Patterns of information use, avoidance and evaluation in a corporate engineering environment. PROCEEDINGS OF THE ANNUAL MEETING-AMERICAN SOCIETY FOR INFORMATION SCIENCE, Information Today; 1998.

Daft, R. L. and R. H. Lengel (1984). "Daft and Lengel, RH (1984) Information richness: a new approach to managerial behavior and organization design, in: Staw, BM and Cummings LL." Research in organizational behavior vol 6.

Dahlstrom, R. and R. Ingram (2003). "Social networks and the adverse selection problem in agency relationships." Journal of Business Research 56(9): 767-775.

Dalsgaard, C. and M. F. Paulsen (2009). "Transparency in cooperative online education." The International Review of Research in Open and Distance Learning 10(3).

Davenport, T. H. and L. Prusak (1998). "Working knowledge: Managing what your organization knows." Harvard Business School Press, Boston, MA.

Davenport, T. H. and L. Prusak (2000). Working knowledge: How organizations manage what they know, Harvard Business Press.

Davis, F. D. (1986). A technology acceptance model for empirically testing new end-user information systems: Theory and results, Massachusetts Institute of Technology.

Davis, F. D., R. P. Bagozzi and P. R. Warshaw (1989). "User acceptance of computer technology: a comparison of two theoretical models." Management Science 35(8): 982-1003.

De Long, D. and P. Seemann (2000). "Confronting conceptual confusion and conflict in knowledge management." Organizational Dynamics 29(1): 33-44.

de Meyer, A. (1991). "TECH TALK-HOW MANAGERS ARE STIMULATING GLOBAL RESEARCH-AND-DEVELOPMENT COMMUNICATION." Sloan Management Review 32(3): 49-58.

Dennison, R. (2006). "Using wikis for collaboration and KM at BT." Knowledge Management Review 9(5): 5.

DeSanctis, G. and M. S. Poole (1994). "Capturing the complexity in advanced technology use: Adaptive structuration theory." Organization Science 5(2): 121-147.

Desouza, K. C. (2003). "Barriers to effective use of knowledge management systems in software engineering." Communications of the ACM 46(1): 99-101.

Dholakia, U. M., R. P. Bagozzi and L. K. Pearo (2004). "A social influence model of consumer participation in network-and small-group-based virtual communities." International Journal of Research in Marketing 21(3): 241-263.

Diamantopoulos, A. and H. M. Winklhofer (2001). "Index construction with formative indicators: an alternative to scale development." Journal of marketing research: 269-277.

Doty, D. H. and W. H. Glick (1998). "Common methods bias: does common methods variance really bias results?" Organizational Research Methods 1(4): 374-406.

Dwyer, C., S. R. Hiltz and K. Passerini (2007). Trust and Privacy Concern Within Social Networking Sites: A Comparison of Facebook and MySpace. AMCIS.

Ellemers, N., P. Kortekaas and J. W. Ouwerkerk (1999). "Self-categorisation, commitment to the group and group self-esteem as related but distinct aspects of social identity." European Journal of Social Psychology 29(2-3): 371-389.

Ellison, N. B. (2007). "Social network sites: Definition, history, and scholarship." Journal of Computer-Mediated Communication 13(1): 210-230.

Evans, D. (2012). Social media marketing: An hour a day, Wiley. com.

Evans, P. B. and T. S. Wurster (1996). "Strategy and the new economics of information." Harvard business review 75(5): 70-82.

Fishbein, M. and I. Ajzen (1975). Belief, attitude, intention and behavior: An introduction to theory and research.

Fornell, C. and F. L. Bookstein (1982). "Two structural equation models: LISREL and PLS applied to consumer exit-voice theory." Journal of marketing research: 440-452.

Fornell, C. and D. F. Larcker (1981). "Evaluating structural equation models with unobservable variables and measurement error." Journal of marketing research: 39-50.

Gagné, M. (2009). "A model of knowledge-sharing motivation." Human Resource Management 48(4): 571-589.

Gefen, D., D. W. Straub and M.-C. Boudreau (2000). Structural equation modeling and regression: Guidelines for research practice. Communications of the Association for Information Systems, Citeseer.

Godin, G., M. Conner and P. Sheeran (2005). "Bridging the intention-behaviour gap: The role of moral norm." British journal of social psychology 44(4): 497-512.

Godin, G. and G. Kok (1996). "The theory of planned behavior: a review of its applications to health-related behaviors." American journal of health promotion 11(2): 87-98.

Goodman, P. S. and E. D. Darr (1998). "Computer-aided systems and communities: mechanisms for organizational learning in distributed environments." MIS quarterly: 417-440.

Granovetter, M. (1992). "Problems of explanation in economic sociology." Networks and organizations: Structure, form, and action 25: 56.

Grant, R. M. (1996). "Prospering in dynamically-competitive environments: organizational capability as knowledge integration." Organization Science 7(4): 375-387.

Grant, R. M. and C. Baden-Fuller (2004). "A knowledge accessing theory of strategic alliances." Journal of management studies 41(1): 61-84.

Gray, P. H. and D. B. Meister (2004). "Knowledge sourcing effectiveness." Management Science 50(6): 821-834.

Gray, P. H. and D. B. Meister (2006). "Knowledge sourcing methods." Information & management 43(2): 142-156.

Griffith, T. L. (1999). "Technology features as triggers for sensemaking." Academy of Management review 24(3): 472-488.

Gross, R. and A. Acquisti (2005). Information revelation and privacy in online social networks. Proceedings of the 2005 ACM workshop on Privacy in the electronic society, ACM.

Hackney, R., K. Desouza and C. Loebbecke (2005). Cooperation or competition: Knowledge sharing processes in interorganisational networks. Second international conference on knowledge management. Charlotte, North Carolina.

Hair, J. F., R. E. Anderson, R. L. Tatham and W. C. Black (1998). "Multivariate analysis." Englewood: Prentice Hall International.

Hall, H. (2001). "Input-friendliness: motivating knowledge sharing across intranets." Journal of information science 27(3): 139-146.

Hansen, M., N. Nohria and T. Tierney (2000). "What's your strategy for managing knowledge." The knowledge management yearbook 2001: 55-69.

Hansen, M. T. (1999). "The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits." Administrative science quarterly 44(1): 82-111.

Harper, F. A. (1974). An introduction to value theory, Institute for Humane Studies.

Harrison, D. A., P. P. Mykytyn and C. K. Riemenschneider (1997). "Executive decisions about adoption of information technology in small business: theory and empirical tests." Information systems research 8(2): 171-195.

Hartwick, J. and H. Barki (1994). "Explaining the role of user participation in information system use." Management Science 40(4): 440-465.

He, W. and K.-K. Wei (2009). "What drives continued knowledge sharing? An investigation of knowledge-contribution and-seeking beliefs." Decision Support Systems 46(4): 826-838.

Helliwell, J. F. and R. D. Putnam (2004). "The social context of well-being." PHILOSOPHICAL TRANSACTIONS-ROYAL SOCIETY OF LONDON SERIES B BIOLOGICAL SCIENCES: 1435-1446.

Hennessy, J. and M. A. West (1999). "Intergroup Behavior in Organizations A Field Test of Social Identity Theory." Small Group Research 30(3): 361-382.

Hew, K. F. and N. Hara (2007). "Knowledge sharing in online environments: A qualitative case study." Journal of the American Society for Information Science and Technology 58(14): 2310-2324.

Hildreth, P. M. and C. Kimble (2004). Knowledge networks: Innovation through communities of practice, IGI Global.

Hoffman, D. L. and T. P. Novak (1996). "Marketing in hypermedia computer-mediated environments: conceptual foundations." The Journal of Marketing: 50-68.

Huber, G. P. (1991). "Organizational learning: The contributing processes and the literatures." Organization Science 2(1): 88-115.

Hulland, J. (1999). "Use of partial least squares (PLS) in strategic management research: a review of four recent studies." Strategic Management Journal 20(2): 195-204.

Igbaria, M., N. Zinatelli, P. Cragg and A. L. Cavaye (1997). "Personal computing acceptance factors in small firms: a structural equation model." MIS quarterly: 279-305.

Ipe, M. (2003). "Knowledge sharing in organizations: a conceptual framework." Human Resource Development Review 2(4): 337-359.

Israel, S. (2009). Twitterville, New York: Portfolio.

Jarvenpaa, S. L. and D. S. Staples (2000). "The use of collaborative electronic media for information sharing: an exploratory study of determinants." The Journal of Strategic Information Systems 9(2): 129-154.

Jasimuddin, S. M. (2006). "Disciplinary roots of knowledge management: a theoretical review." International Journal of Organizational Analysis 14(2): 171-180.

Jasimuddin, S. M., J. H. Klein and C. Connell (2005). "The paradox of using tacit and explicit knowledge: strategies to face dilemmas." Management Decision 43(1): 102-112.

Jeppesen, L. B. and L. Frederiksen (2006). "Why do users contribute to firm-hosted user communities? The case of computer-controlled music instruments." Organization Science 17(1): 45-63.

Johannessen, J.-A. and B. Olsen (2003). "Knowledge management and sustainable competitive advantages: The impact of dynamic contextual training." International Journal of Information Management 23(4): 277-289.

Jöreskog, K. G. and D. Sörbom (1989). LISREL 7: A guide to the program and applications, Spss Chicago.

Kaiser, S., G. Müller-Seitz, M. P. Lopes and M. P. e Cunha (2007). "Weblog-technology as a trigger to elicit passion for knowledge." Organization 14(3): 391-412.

Kanagaretnam, K., S. Mestelman, S. Nainar and M. Shehata (2010). "Trust and reciprocity with transparency and repeated interactions." Journal of Business Research 63(3): 241-247.

Kankanhalli, A., B. C. Tan and K.-K. Wei (2005a). "Contributing knowledge to electronic knowledge repositories: an empirical investigation." MIS quarterly: 113-143.

Kankanhalli, A., B. C. Tan and K. K. Wei (2005b). "Understanding seeking from electronic knowledge repositories: An empirical study." Journal of the American Society for Information Science and Technology 56(11): 1156-1166.

Kankanhalli, A., B. C. Y. Tan and K. K. Wei (2005). "Contributing knowledge to electronic knowledge repositories: An empirical investigation." Mis Quarterly: 113-143.

Kankanhalli, A., B. C. Y. Tan and K. K. Wei (2005). "Understanding seeking from electronic knowledge repositories: An empirical study." Journal of the American Society for Information Science and Technology 56(11): 1156-1166.

Kaplan, A. M. and M. Haenlein (2010). "Users of the world, unite! The challenges and opportunities of Social Media." Business Horizons 53(1): 59-68.

Kiesler, S. and L. Sproull (1991). "Connections: New ways of working in the networked organization." Cambridge, MA.

Kietzmann, J. H., K. Hermkens, I. P. McCarthy and B. S. Silvestre (2011). "Social media? Get serious! Understanding the functional building blocks of social media." Business Horizons 54(3): 241-251.

Kim, L. and R. R. Nelson (2000). Technology, learning, and innovation: Experiences of newly industrializing economies, Cambridge University Press.

Kling, R. and C. Courtright (2003). "Group behavior and learning in electronic forums: A sociotechnical approach." The Information Society 19(3): 221-235.

Kolekofski, K. E. and A. R. Heminger (2003). "Beliefs and attitudes affecting intentions to share information in an organizational setting." Information & Management 40(6): 521-532.

Koster, B. and M. Van Gaalen (2010). "Social Media Update 2010." Retrieved 25 July, 2013, from http://www.jungleminds.nl/upload/public/file/2010/Social_Media_Update_2010_Jungle_Minds.pdf.

Lam, A. (1997). "Embedded firms, embedded knowledge: Problems of collaboration and knowledge transfer in global cooperative ventures." Organization studies 18(6): 973-996.

Law, K. S., C.-S. Wong and W. M. Mobley (1998). "Toward a taxonomy of multidimensional constructs." Academy of Management review 23(4): 741-755.

- Lazaric, N. and E. Lorenz (1998). "The learning dynamics of trust, reputation and confidence." Trust and economic learning: 1-20.
- Lee, D. and E. Van den Steen (2010). "Managing know-how." Management Science 56(2): 270-285.
- Legris, P., J. Ingham and P. Colletette (2003). "Why do people use information technology? A critical review of the technology acceptance model." Information & management 40(3): 191-204.
- Lesser, E. L. (2000). "Leveraging social capital in organizations." Knowledge and social capital: 3-17.
- Li, C., J. Bernoff, C. Pflaum and S. Glass (2007). "How consumers use social networks." Forrester Research. June 21: 2007.
- Lindell, M. K. and C. J. Brandt (2000). "Climate quality and climate consensus as mediators of the relationship between organizational antecedents and outcomes." Journal of Applied Psychology 85(3): 331.
- Lindell, M. K. and D. J. Whitney (2001). "Accounting for common method variance in cross-sectional research designs." Journal of Applied Psychology 86(1): 114.
- Ling, K., G. Beenen, P. Ludford, X. Wang, K. Chang, X. Li, D. Cosley, D. Frankowski, L. Terveen and A. M. Rashid (2005). "Using social psychology to motivate contributions to online communities." Journal of Computer-Mediated Communication 10(4): 00-00.
- Ma, M. and R. Agarwal (2007). "Through a glass darkly: Information technology design, identity verification, and knowledge contribution in online communities." Information systems research 18(1): 42-67.
- MacKenzie, D. and G. Spinardi (1995). "Tacit knowledge, weapons design, and the uninvention of nuclear weapons." American Journal of Sociology: 44-99.
- Maher, B. (1969). "Clinical psychology and personality: The selected papers of George Kelly."
- Makhija, M. V. and U. Ganesh (1997). "The relationship between control and partner learning in learning-related joint ventures." Organization Science 8(5): 508-527.

Malhotra, N. K., S. S. Kim and A. Patil (2006). "Common method variance in IS research: A comparison of alternative approaches and a reanalysis of past research." Management Science 52(12): 1865-1883.

Malhotra, Y. (2003). Measuring knowledge assets of a nation: knowledge systems for development. Invited Research Paper Sponsored by the United Nations Department of Economic and Social Affairs. Keynote Presentation at the Ad Hoc Group of Experts Meeting at the United Nations Headquarters, New York City, NY, Citeseer.

March, J. G. and H. A. Simon (1958). "Organizations."

Markus, M. (1990). Toward a 'Critical Mass' Theory of Interactive Media. Organizations and Communication Technology. J. Fulk and C. Steinfield, Newbury Park, CA, Sage Publications.

Markus, M. L. (2001). "Toward a theory of knowledge reuse: Types of knowledge reuse situations and factors in reuse success." Journal of management information systems 18(1): 57-94.

Mathieson, K. (1991). "Predicting user intentions: comparing the technology acceptance model with the theory of planned behavior." Information systems research 2(3): 173-191.

May, D. R., R. L. Gilson and L. M. Harter (2004). "The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work." Journal of Occupational and Organizational Psychology 77(1): 11-37.

McAfee, A. P. (2006). "Enterprise 2.0: The dawn of emergent collaboration." Management of Technology and Innovation 47(3).

McAllister, D. J. (1995). "Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations." Academy of management journal 38(1): 24-59.

McKnight, D. H., L. L. Cummings and N. L. Chervany (1998). "Initial trust formation in new organizational relationships." Academy of Management review 23(3): 473-490.

McMillan, S. J. and J. S. Hwang (2002). "Measures of perceived interactivity: An exploration of the role of direction of communication, user control, and time in shaping perceptions of interactivity." Journal of Advertising: 29-42.

Meyer, J. P., D. J. Stanley, L. Herscovitch and L. Topolnytsky (2002). "Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences." Journal of vocational behavior 61(1): 20-52.

Michailova, S. and K. Husted (2003). "Knowledge-sharing hostility in Russian firms." California management review 45(3): 59-77.

Mishra, A. K. (1996). "Organizational responses to crisis: The centrality of trust."

Misztal, B. A. (1996). Trust in modern societies: The search for the bases of social order, Polity Press Cambridge.

Moreland, R. L. (2006). "Transactive memory: Learning who knows what in work groups and organizations." Small groups: Key readings: 327-346.

Morris, M. G. and V. Venkatesh (2000). "Age differences in technology adoption decisions: Implications for a changing work force." Personnel psychology 53(2): 375-403.

Morrison, E. W. (1993). "Newcomer information seeking: Exploring types, modes, sources, and outcomes." Academy of management journal 36(3): 557-589.

Morrison, E. W. (2002). "Information seeking within organizations." Human Communication Research 28(2): 229-242.

Moser, J. (1997). "The origins of the Austrian school of economics." Humane Studies Review 11(1): 14-32.

Mukherji, S. (2005). "Knowledge management strategy in software services organizations: straddling codification and personalization." IIMB Management Review 17(3): 33-39.

Nahapiet, J. and S. Ghoshal (1998). "Social capital, intellectual capital, and the organizational advantage." Academy of management review: 242-266.

Nonaka, I. (1994). "A dynamic theory of organizational knowledge creation." Organization science 5(1): 14-37.

Nonaka, I. (1995). The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation: How Japanese Companies Create the Dynamics of Innovation, Oxford university press.

Nonaka, I. and H. Takeuchi (1995). The knowledge-creating company: How Japanese companies create the dynamics of innovation, Oxford University Press, USA.

Nunnally, J. (1978). C.(1978). Psychometric theory, New York: McGraw-Hill.

O'Dell, C. and C. J. Grayson (1998). "If only we knew what we know." California management review 40(3): 154-174.

Oke, A. and M. Idiagbon-Oke (2010). "Communication channels, innovation tasks and NPD project outcomes in innovation-driven horizontal networks." Journal of Operations Management 28(5): 442-453.

Orlikowski, W. J. (1993). "CASE tools as organizational change: investigating incremental and radical changes in systems development." MIS quarterly 17(3): 309-340.

Osterloh, M. and B. S. Frey's (2000). "Motivation, knowledge transfer, and organizational forms." Organization Science 11(5): 538-550.

Overby, E., A. Bharadwaj and V. Sambamurthy (2006). "Enterprise agility and the enabling role of information technology." European Journal of Information Systems 15(2): 120-131.

Parameswaran, M. and A. B. Whinston (2007). "SOCIAL COMPUTING: AN OVERVIEW1." Communications of the Association for Information Systems (Volume 19, 2007) 762(780): 762.

Paroutis, S. and A. Al Saleh (2009). "Determinants of knowledge sharing using Web 2.0 technologies." Journal of Knowledge Management 13(4): 52-63.

Peddibhotla, N. B. and M. R. Subramani (2007). "Contributing to public document repositories: A critical mass theory perspective." Organization studies 28(3): 327-346.

Pelozo, J., S. Hudson and D. N. Hassay (2009). "The marketing of employee volunteerism." Journal of Business Ethics 85(2): 371-386.

Phang, C. W., A. Kankanhalli and R. Sabherwal (2009). "Usability and sociability in online communities: A comparative study of knowledge seeking and contribution." Journal of the Association for Information Systems 10(10): 721-747.

Podsakoff, P. M., S. B. MacKenzie, J.-Y. Lee and N. P. Podsakoff (2003). "Common method biases in behavioral research: a critical review of the literature and recommended remedies." Journal of Applied Psychology 88(5): 879.

Polanyi, M. (1966). "The logic of tacit inference." Philosophy 41(155): 1-18.

Povey, R., M. Conner, P. Sparks, R. James and R. Shepherd (2000). "The theory of planned behaviour and healthy eating: Examining additive and moderating effects of social influence variables." Psychology & Health 14(6): 991-1006.

Preece, J. (2000). Online communities: Designing usability and supporting socialbilty, John Wiley & Sons, Inc.

Preece, J. (2001). "Sociability and usability in online communities: determining and measuring success." Behaviour & Information Technology 20(5): 347-356.

Preece, J. and B. Shneiderman (2009). "The reader-to-leader framework: Motivating technology-mediated social participation." AIS Transactions on Human-Computer Interaction 1(1): 13-32.

Purvis, R. L., V. Sambamurthy and R. W. Zmud (2001). "The assimilation of knowledge platforms in organizations: An empirical investigation." Organization Science 12(2): 117-135.

Putnam, R. D. (2001). Bowling alone: The collapse and revival of American community, Simon & Schuster.

Radner, R. and M. Rothschild (1975). "On the allocation of effort." Journal of Economic Theory 10(3): 358-376.

Rafaeli, S. (1988). "Interactivity: From new media to communication." Advancing communication science: Merging mass and interpersonal processes 16: 110-134.

Rafaeli, S. and F. Sudweeks (1997). "Networked interactivity." Journal of Computer-Mediated Communication 2(4): 0-0.

Rao, L. (2010). "How Social Media Drives New Business: Six Case Studies." Tech Crunch.

Rao, M. (2012). Knowledge management tools and techniques, Routledge.

Ridings, C. M., D. Gefen and B. Arinze (2002). "Some antecedents and effects of trust in virtual communities." The Journal of Strategic Information Systems 11(3): 271-295.

Rigby, D. K., F. F. Reichheld and P. Schefter (2002). "Avoid the four perils of CRM." Harvard Business Review 80(2): 101-109.

Robertson, D. C. (1989). "Social determinants of information systems use." Journal of management information systems 5(4): 55-71.

Rogers, E. (1995). "M.(1995). Diffusion of innovations." The Free Press, New York.

Salaway, G. (1987). "An organizational learning approach to information systems development." MIS quarterly 11(2): 245-264.

Sambamurthy, V., A. Bharadwaj and V. Grover (2003). "Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms." MIS quarterly: 237-263.

Scheepers, R., K. Venkitachalam and M. R. Gibbs (2004). "Knowledge strategy in organizations: refining the model of Hansen, Nohria and Tierney." The Journal of Strategic Information Systems 13(3): 201-222.

Schepers, J. and M. Wetzels (2007). "A meta-analysis of the technology acceptance model: Investigating subjective norm and moderation effects." Information & management 44(1): 90-103.

Schultze, U. and R. J. Boland Jr (2000). "Place, space and knowledge work: a study of outsourced computer systems administrators." Accounting, Management and Information Technologies 10(3): 187-219.

Scott, J. E. and I. Vessey (2002). "Managing risks in enterprise systems implementations." Communications of the ACM 45(4): 74-81.

Sharma, R., P. Yetton and J. Crawford (2010). "A critique of the marker variable technique: the effect of alternative marker variable criteria." ECIS 2010 Proceedings.

Smith, M. A. (1999). Communities in cyberspace, Routledge.

Song, M., H. Berends, H. Van der Bij and M. Weggeman (2007). "The Effect of IT and Co-location on Knowledge Dissemination." Journal of Product Innovation Management 24(1): 52-68.

Spender, J.-C. (1996). "Organizational knowledge, learning and memory: three concepts in search of a theory." Journal of organizational change management 9(1): 63-78.

Stutzman, F. (2006). "An evaluation of identity-sharing behavior in social network communities." Journal of the International Digital Media and Arts Association 3(1): 10-18.

Suryanarayanaa, A. and R. Lamichhane (2013). "Using the Portals of Social Media in a Connected Universe: Implications for HR." PROCEEDINGS OF ARCCIT2013 II INTERNATIONAL: 8.

Swan, J., S. Newell and M. Robertson (2000). Limits of IT-driven knowledge management initiatives for interactive innovation processes: towards a community-based approach. System Sciences, 2000. Proceedings of the 33rd Annual Hawaii International Conference on, IEEE.

Szulanski, G. (1996). "Exploring internal stickiness: Impediments to the transfer of best practice within the firm." Strategic Management Journal 17: 27-43.

Taylor, S. and P. Todd (1995). "Assessing IT usage: The role of prior experience." MIS quarterly: 561-570.

Teigland, R. and M. M. L. Wasko (2003). "Integrating Knowledge through Information Trading: Examining the Relationship between Boundary Spanning Communication and Individual Performance*." Decision Sciences 34(2): 261-286.

Thompson, L. L., J. M. Levine and D. M. Messick (1999). Shared Cognition in Organizations: The Management of Knowledge, Routledge.

Trist, E. and H. Murray (1993). "The social engagement of social science, volume ii: the socio-technical perspective." The social engagement of social science. Volume II: the socio-technical perspective.

Tsai, W. and S. Ghoshal (1998). "Social capital and value creation: The role of intrafirm networks." Academy of management journal 41(4): 464-476.

Tsoukas, H. (1996). "The firm as a distributed knowledge system: a constructionist approach." Strategic Management Journal 17(WINTER): 11-25.

Venkatesh, V. and H. Bala (2008). "Technology acceptance model 3 and a research agenda on interventions." Decision sciences 39(2): 273-315.

- Venkatesh, V. and F. D. Davis (1996). "A model of the antecedents of perceived ease of use: Development and test*." Decision sciences 27(3): 451-481.
- Venkatesh, V. and F. D. Davis (2000). "A theoretical extension of the technology acceptance model: four longitudinal field studies." Management Science 46(2): 186-204.
- Venkatesh, V. and M. G. Morris (2000). "Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior." MIS quarterly: 115-139.
- Venkatesh, V., M. G. Morris, G. B. Davis and F. D. Davis (2003). "User acceptance of information technology: Toward a unified view." Mis Quarterly: 425-478.
- Wang, S. and R. A. Noe (2010). "Knowledge sharing: A review and directions for future research." Human Resource Management Review 20(2): 115-131.
- Wasko, M. and S. Faraj (2000). "'It is what one does': why people participate and help others in electronic communities of practice." The Journal of Strategic Information Systems 9(2): 155-173.
- Wasko, M. M. and S. Faraj (2005). "Why should I share? Examining social capital and knowledge contribution in electronic networks of practice." MIS quarterly: 35-57.
- Wasko, M. M., S. Faraj and R. Teigland (2004). "Collective action and knowledge contribution in electronic networks of practice." Journal of the association for information systems 5(11): 2.
- Watson, S. and K. Hewett (2006). "A Multi-Theoretical Model of Knowledge Transfer in Organizations: Determinants of Knowledge Contribution and Knowledge Reuse*." Journal of Management Studies 43(2): 141-173.
- Wernerfelt, B. (1984). "A resource-based view of the firm." Strategic Management Journal 5(2): 171-180.
- Wickramasinghe, N. (2002). Practicing what we preach: Are knowledge management systems in practice really knowledge management systems. Proceedings of the 35th Hawaii International Conference on System Sciences, Prentice-Hall.

Yuan, Y. C., J. Fulk and P. R. Monge (2007). "Access to information in connective and communal transactive memory systems." Communication research 34(2): 131-155.

Yuan, Y. C., L. N. Rickard, L. Xia and C. Scherer (2011). "The interplay between interpersonal and electronic resources in knowledge seeking among co-located and distributed employees." Journal of the American Society for Information Science and Technology 62(3): 535-549.

Appendices

Appendix A Measurement Development of Study 1

Construct	Definition	Direction	Items
Independent Variables			
Reach_NUM	To what extent the knowledge sharing mechanism are able to reach a high number of receivers	Please indicate the degree do you agree or disagree with the following statements when exposed to three mechanisms respectively, Transfer of people, Best-practice guidelines?	<ul style="list-style-type: none"> • I will choose this mechanism, when I want to share knowledge to as many people as possible at one time • I will choose this mechanism, when I want to explain my knowledge to many people at the same time • I will choose this mechanism, when I want to convey my knowledge to a lot of people (1. "strongly disagree"; 7, "strongly agree")
Reach_PLACE	To what extent the knowledge sharing mechanism are able to overcome geographical barrier	Please indicate the degree do you agree or disagree with the following statements when exposed to three mechanisms respectively, Transfer of people, Best-practice guidelines?	<ul style="list-style-type: none"> • I will choose this mechanism, when I want to share knowledge to any location in the world • I will choose this mechanism, when I want to share knowledge to many locations at the same time • I will choose this mechanism, when I want to share knowledge to a different location (1. "strongly disagree"; 7, "strongly agree")
Reach_TEMP	To what extent the knowledge sharing mechanism are able to overcome temporal barrier	Please indicate the degree do you agree or disagree with the following statements when exposed to three mechanisms respectively, Transfer of people, Best-practice guidelines?	<ul style="list-style-type: none"> • I will choose this mechanism, when I want the recipient to have access to the knowledge at any time he/she wants • I will choose this mechanism, when I want the recipient to have access to the knowledge for a long time • I will choose this mechanism, when I want the recipient to have access to the knowledge in the future (1. "strongly disagree"; 7, "strongly agree")
Reach_HIERAR	To what extent the knowledge sharing mechanism are able to overcome hierarchical barrier	Please indicate the degree do you agree or disagree with the following statements when exposed to three mechanisms respectively, Transfer of people, Best-practice guidelines?	<ul style="list-style-type: none"> • I will choose this mechanism, when I want to share knowledge with people of different seniority level in the company • I will choose this mechanism, when I want to share knowledge with people from a different product /technology unit in the company • I will choose this mechanism, when I want to share knowledge with people with people from different functions in the company (1. "strongly disagree"; 7, "strongly agree")
Richness_CONTENT	To what extent the knowledge sharing mechanism are able to carry various content of the	Please indicate the degree do you agree or disagree with the following statements when exposed to three mechanisms respectively, Transfer of people, Best-	<ul style="list-style-type: none"> • I will choose this mechanism, when I want to share knowledge which contains facts • I will choose this mechanism, when I want to share knowledge which contains opinions • I will choose this mechanism, when I want to share knowledge which contains scientific principles • I will choose this mechanism, when I

	knowledge	practice guidelines?	want to share knowledge which contains past experiences (1. "strongly disagree"; 7, "strongly agree")
Richness_FEED	The feedback immediacy of knowledge sharing mechanism	Please indicate the degree do you agree or disagree with the following statements when exposed to three mechanisms respectively, Transfer of people, Best-practice guidelines?	<ul style="list-style-type: none"> • I will choose this mechanism, when I want to know what others think about the knowledge immediately • I will choose this mechanism, when I want to be able to react to others' feedback immediately • I will choose this mechanism, when I want to be able to learn from others quickly (1. "strongly disagree"; 7, "strongly agree")
Richness_PERSONAL	The degree of personalness of knowledge sharing mechanism	Please indicate the degree do you agree or disagree with the following statements when exposed to three mechanisms respectively, Transfer of people, Best-practice guidelines?	<ul style="list-style-type: none"> • I will choose this mechanism, when I have a close relationship with the recipients • I will choose this mechanism, when I have a social relationship with the recipients • I will choose this mechanism, when I have a personal relationship with the recipients (1. "strongly disagree"; 7, "strongly agree")
Perceived ease of use	The degree to which a person believes that using a particular system would be free of effort	Please indicate the degree do you agree or disagree with the following statements when exposed to three mechanisms respectively, Transfer of people, Best-practice guidelines? (Davis, 1989)	<ul style="list-style-type: none"> • I will choose this mechanism, because it is easy for me to use or organize • I will choose this mechanism, because it is easy for me to learn to be skillful • I will choose this mechanism, because it is easy for me to do what I want to • I will choose this mechanism, because it is easy for me to get assistance or help when I encounter difficulties (1. "strongly disagree"; 7, "strongly agree")
Subjective Norm	The individual's perception of social pressure to perform the behavior	How likely is it that people who are important to you would strongly approve or disapprove of your using ___ when you want to share knowledge you possess. (Ajzen, 1991; Chau and Hu, 2001; Ryu et al., 2003; Bock et al., 2005)	<ul style="list-style-type: none"> • Most people who are important to you would (1. "strongly disapprove"; 7, "strongly approve")
Perceived Behavior Control	The individual's perception of his or her control over performance	To you, the control of using ___ would be... (Ajzen, 1991; Chau and Hu, 2001; Ryu et al., 2003)	<ul style="list-style-type: none"> • under your control • simply to arrange (1. "strongly disagree"; 7, "strongly agree")

	of the behavior		
--	-----------------	--	--

Dependent Variables

Knowledge sharing mechanism selection intention	The degree to which people believe themselves will select knowledge-sharing mechanism	<ul style="list-style-type: none"> • How likely is it that you intend to use ___ when you want people to be aware of existence of knowledge (or obtain further knowledge)? • How certain are your plans to use ___ when you want people to be aware of existence of knowledge (or obtain further knowledge)? (Ajzen, 1991; Bock and Kim, 2002; Ryu et al., 2003) 	<p>(1. “Unlikely”; 7. “likely”) (1. “Certainly don’t”; 7. “Certainly do”)</p>
---	---	--	--

Control Variables

Gender	Gender	What is your gender?	<ul style="list-style-type: none"> • Male • Female
Working experience	Length of full-time working experience	What is your estimated length of total full-time working experience?	<ul style="list-style-type: none"> • < 2 years • 2 – 4 years • 5 – 7 years • 8 – 10 years • 11 – 13 years • > 13 years
Education background	Education background	Which degree did you hold?	<ul style="list-style-type: none"> • Diploma holder • Degree holder • Master holder • PhD holder
Job function	Job Function	Which function do you serve?	<ul style="list-style-type: none"> • Production • Engineering / Process Development • Quality • R&D / Product development • Logistic • Marketing / Sales • Finance • General Management • Others
Job title	Job title	Please indicate the title you possess?	<ul style="list-style-type: none"> • Technician • Assistant Engineer • Engineer • Senior Engineer • Manager • General Manager • Director (or higher) • Others



Appendix B Questionnaire of Study 1

Please read these instructions before proceeding:

We are conducting a survey regarding your experience with two knowledge sharing mechanisms, **Best Practice Newsletter** and **Transfer of People**, defined in detail at **next page**. This is an integral part of our **research titled *Reach and Richness towards a Theory of Knowledge Sharing Mechanism Selection*** to identify the core factors influencing **knowledge sharing mechanism selection**. You can be assured that each question is important and your input is valuable to us.

The questionnaire includes **Part I** and **Part II**, which will take less than **20 minutes** to complete. Please answer all questions based on your own experience of the two knowledge sharing mechanisms. Please try to give your best estimate instead of leaving the question blank. Your time is highly appreciated.

We declare that your participation is **voluntary**. It is emphasized here that all information you provide in this survey will be **anonymous; no identifying** information will be gathered. As a token of appreciation, you will receive a **gift** for each completed questionnaire.

*After reading each item carefully, please respond to it by placing an “X” in the appropriate scale provided. **For example**, if you do not have a preference to the following question, you would mark X on the “neither” box.*

Question: When I text short message to make friends to be aware of the existence of a new restaurant, I consider such choice to be

Good				X				Bad
	extremely	quite	slightly	neither	slightly	quite	extremely	

For research related matters, please contact principal investigator Liu Wenting at g0800973@nus.edu.sg, Dept. of Industrial & Systems Engineering.

For an independent opinion regarding the research and the rights of research participants, you may contact a staff member of the National University of Singapore Institutional Review Board (Attn: Mr Chan Tuck Wai, at telephone 65-6516 1234 or email at irb@nus.edu.sg)

(Please turn back for **MECHANISM DEFINITION**)



Please refer to the following definitions of the knowledge sharing mechanisms in this questionnaire at any time if necessary

Best Practice Newsletter	Transfer of People
Best practice newsletter refers to guideline, technical note or corporate newsletter distributed in electronic or paper format.	This is the practice where staff is transferred : i. from headquarter to subsidiary, bringing new knowledge to the subsidiary; or ii. from subsidiary to headquarter in order to learn new knowledge/technology

Please answer the following questions before starting this questionnaire

i. The last time I read and learned something new from best practice newsletter was ____ ago.	<input type="checkbox"/> < 1 months <input type="checkbox"/> 1–12 months <input type="checkbox"/> 1-2 years <input type="checkbox"/> 2-5 years <input type="checkbox"/> > 5 years <input type="checkbox"/> I have never benefited from the use of such newsletter
ii. The last time I contributed to best practice newsletter was ____ ago.	<input type="checkbox"/> < 1 months <input type="checkbox"/> 1–12 months <input type="checkbox"/> 1-2 years <input type="checkbox"/> 2-5 years <input type="checkbox"/> > 5 years <input type="checkbox"/> I have never contributed to such newsletter
iii. The frequency to which I read or contribute to best practice newsletter is ____.	<input type="checkbox"/> every week <input type="checkbox"/> every month <input type="checkbox"/> every 6 months <input type="checkbox"/> once a year
iv. It has been ____ since my last experience of working with an expat, or was transferred to another location.	<input type="checkbox"/> < 1 months <input type="checkbox"/> 1–12 months <input type="checkbox"/> 1-2 years <input type="checkbox"/> 2-5 years <input type="checkbox"/> > 5 years <input type="checkbox"/> I have never work with such expert, or been transferred for such purpose myself
v. The frequency for me to be transferred or work with an expat is ____.	<input type="checkbox"/> every week <input type="checkbox"/> every month <input type="checkbox"/> every 6 months <input type="checkbox"/> once a year <input type="checkbox"/> I am not likely to be transferred abroad or worked with an expat.

(Please turn to next page for **PART I**)

1. I will choose this mechanism, when I want to	Best Practice Newsletter							Transfer of People						
	strongly disagree		neutral			strongly agree		strongly disagree		neutral			strongly agree	
1. share knowledge to as many people as possible at one time	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. explain my knowledge to many people at the same time	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. convey my knowledge to a lot of people	1	2	3	4	5	6	7	1	2	3	4	5	6	7

(Don't forget to rank both mechanisms)

2. I will choose this mechanism, when I want to share knowledge	Best Practice Newsletter							Transfer of People						
	strongly disagree		neutral			strongly agree		strongly disagree		neutral			strongly agree	
1. to any location in the world	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. to many locations at the same time	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. to a different location	1	2	3	4	5	6	7	1	2	3	4	5	6	7

(Don't forget to rank both mechanisms)

3. I will choose this mechanism, when I want the recipient to have access to the knowledge	Best Practice Newsletter							Transfer of People						
	strongly disagree		neutral			strongly agree		strongly disagree		neutral			strongly agree	
1. at any time he/she wants	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. for a long time	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. in the future	1	2	3	4	5	6	7	1	2	3	4	5	6	7

(Don't forget to rank both mechanisms)

4. I will choose this mechanism, when I want to share knowledge with people	Best Practice Newsletter							Transfer of People						
	strongly disagree		neutral			strongly agree		strongly disagree		neutral			strongly agree	
1. of different seniority level in the company	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. from a different product/technology unit	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. with people from different functions	1	2	3	4	5	6	7	1	2	3	4	5	6	7

(Don't forget to rank both mechanisms)

5. I will choose this mechanism, when I want to share knowledge which contains	Best Practice Newsletter							Transfer of People						
	strongly disagree		neutral			strongly agree		strongly disagree		neutral			strongly agree	
1. facts	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. opinions	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. scientific principles	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4. know-how	1	2	3	4	5	6	7	1	2	3	4	5	6	7
5. experiences	1	2	3	4	5	6	7	1	2	3	4	5	6	7

(Don't forget to rank both mechanisms)

6. I will choose this mechanism, when I want to	Best Practice Newsletter							Transfer of People						
	strongly disagree		neutral			strongly agree		strongly disagree		neutral			strongly agree	
1. know what others think about the knowledge immediately	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. be able to react to others' feedback immediately	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. be able to learn from others quickly	1	2	3	4	5	6	7	1	2	3	4	5	6	7

(Don't forget to rank both mechanisms)

7. I will choose this mechanism,	Best Practice Newsletter	Transfer of People
---	---------------------------------	---------------------------

when I have	strongly disagree			neutral			strongly agree			strongly disagree			neutral			strongly agree		
	1. a close relationship with the recipients	1	2	3	4	5	6	7	1	2	3	4	5	6	7			
2. a social relationship with the recipients	1	2	3	4	5	6	7	1	2	3	4	5	6	7				
3. a personal relationship with the recipients	1	2	3	4	5	6	7	1	2	3	4	5	6	7				
4. a professional relationship with the recipients	1	2	3	4	5	6	7	1	2	3	4	5	6	7				

(Don't forget to rank both mechanisms)

8. I will choose this mechanism, because it is easy for me	Best Practice Newsletter							Transfer of People									
	strongly disagree			neutral			strongly agree			strongly disagree			neutral			strongly agree	
1. to use or organize	1	2	3	4	5	6	7	1	2	3	4	5	6	7			
2. to learn to be skillful	1	2	3	4	5	6	7	1	2	3	4	5	6	7			
3. to do what I want to	1	2	3	4	5	6	7	1	2	3	4	5	6	7			
4. to get assistance or help when I encounter difficulties	1	2	3	4	5	6	7	1	2	3	4	5	6	7			

(Don't forget to rank both mechanisms)

9. When I use *Best Practice Newsletter* to make people to be aware of the existence of certain knowledge, I consider such choice to be

Good							Bad
	extremely	quite	slightly	neither	slightly	Quite	extremely
Harmful							Helpful
	extremely	quite	slightly	neither	slightly	quite	extremely
Positive							Negative
	extremely	quite	slightly	neither	slightly	quite	extremely
Effective							Ineffective
	extremely	quite	slightly	neither	slightly	quite	extremely
Foolish							Wise
	extremely	quite	slightly	neither	slightly	quite	extremely

10. When I use *Transfer of People* to make people to be aware of the existence of certain knowledge, I consider such choice to be

Good							Bad
	extremely	quite	slightly	neither	slightly	quite	extremely
Harmful							Helpful
	extremely	quite	slightly	neither	slightly	quite	extremely
Positive							Negative
	extremely	quite	slightly	neither	slightly	quite	extremely
Effective							Ineffective
	extremely	quite	slightly	neither	slightly	quite	extremely
Foolish							Wise
	extremely	quite	slightly	neither	slightly	quite	extremely

11. When I use *Best Practice Newsletter* to make people to further understand the details of the knowledge, I consider such choice to be

Good							Bad
	extremely	quite	slightly	neither	slightly	quite	extremely
Harmful							Helpful
	extremely	quite	slightly	neither	slightly	quite	extremely
Positive							Negative
	extremely	quite	slightly	neither	slightly	quite	extremely
Effective							Ineffective
	extremely	quite	slightly	neither	slightly	quite	extremely
Foolish							Wise
	extremely	quite	slightly	neither	slightly	quite	extremely

12. When I use *Transfer of People* to make people to further understand the details of the knowledge, I consider such choice to be

Good							Bad
	extremely	quite	slightly	neither	slightly	Quite	extremely
Harmful							Helpful
	extremely	quite	slightly	neither	slightly	Quite	extremely
Positive							Negative
	extremely	quite	slightly	neither	slightly	Quite	extremely
Effective							Ineffective
	extremely	quite	slightly	neither	slightly	Quite	extremely
Foolish							Wise
	extremely	quite	slightly	neither	slightly	Quite	extremely

13. When I share knowledge with the following colleagues using this mechanism, they would evaluate such choice as	Best Practice Newsletter							Transfer of People						
	strongly disapprove		neutral			strongly approve		strongly disapprove		neutral			strongly approve	
1. potential colleagues knowledge receiver	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. boss or team leader	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. top management	1	2	3	4	5	6	7	1	2	3	4	5	6	7

(Don't forget to rank both mechanisms)

14. When I share knowledge with the following colleagues using this mechanism, the likelihood that they would approve such choice	Best Practice Newsletter							Transfer of People						
	unlikely		somewhat			likely		unlikely		somewhat			likely	
1. potential colleagues knowledge receiver	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. boss or team leader	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. top management	1	2	3	4	5	6	7	1	2	3	4	5	6	7

(Don't forget to rank both mechanisms)

15. In general, when I want to share knowledge using this mechanism, I will	Best Practice Newsletter							Transfer of People						
	strongly disagree		neutral			strongly agree		strongly disagree		neutral			strongly agree	
1. respect and put into practice my colleagues decision	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. accept and carry out my boss's decision even if it is different from mine	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. try to follow top management's policy and intention	1	2	3	4	5	6	7	1	2	3	4	5	6	7

(Don't forget to rank both mechanisms)

16. To me, the control of using this mechanism would be	Best-practice Newsletter							Transfer of People						
	strongly disagree		neutral			strongly agree		strongly disagree		neutral			strongly agree	
1. easy	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. under my control	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. simply to arrange	1	2	3	4	5	6	7	1	2	3	4	5	6	7

(Don't forget to rank both mechanisms)

17. The likelihood of me having _____ (following resource) that could enable me use the mechanism is	Best Practice Newsletter							Transfer of People						
	unlikely		somewhat			likely		unlikely		somewhat			likely	
1. financial resources	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. time it takes to implement it	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. skills to organize and operate it	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4. training it would take to make employee 'up-to-speed'	1	2	3	4	5	6	7	1	2	3	4	5	6	7
5. ability to get additional employee if needed	1	2	3	4	5	6	7	1	2	3	4	5	6	7

(Don't forget to rank both mechanisms)

18. How important is it for me to have the following resources so that I can use the mechanism concerned?	Best Practice Newsletter							Transfer of People						
	Important		neither			unimportant		Important		neither			unimportant	
1. financial resources	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. time it takes to implement it	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. skills to organize and operate it	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4. training it would take to make employee 'up-to-speed'	1	2	3	4	5	6	7	1	2	3	4	5	6	7
5. ability to get additional employee if needed	1	2	3	4	5	6	7	1	2	3	4	5	6	7

(Don't forget to rank both mechanisms)

19. When I want people to be aware of existence of knowledge, the likelihood that I intend to use *Best Practice Newsletter* would be

extremely	quite	slightly	neither	slightly	quite	extremely
low	low	low		high	high	high

20. When I want people to be aware of existence of knowledge, the certainty that I plan to use *Best Practice Newsletter* would be

extremely	quite	slightly	neither	slightly	quite	extremely
low	low	low		high	high	high

21. When I want people to be aware of existence of knowledge, the likelihood that I intend to use *Transfer of People* would be

extremely	quite	slightly	neither	slightly	quite	extremely
low	low	low		high	high	high

22. When I want people to be aware of existence of knowledge, the certainty that I plan use *Transfer of People* would be

extremely	quite	slightly	neither	slightly	quite	extremely
low	low	low		high	high	high

23. When I want people to further understand the details of the knowledge, the likelihood that I intend to use *Best Practice Newsletter* would be

extremely	quite	slightly	neither	slightly	quite	extremely
low	low	low		high	high	high

24. When I want people to further understand the details of the knowledge, the certainty that I intend to use *Best Practice Newsletter* would be

extremely	quite	slightly	neither	slightly	quite	extremely
low	low	low		high	high	high

25. When I want people to further understand the details of the knowledge, the likelihood that I intend to use *Transfer of People* would be

extremely	quite	slightly	neither	slightly	quite	extremely
low	low	low		high	high	high

26. When I want people to further understand the details of the knowledge, the certainty that I intend to use *Transfer of People* would be

extremely	quite	slightly	neither	slightly	quite	extremely
low	low	low		high	high	high

(Please turn to next page for **PART II**)

Background Information

Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female
Year of full time working experience	<input type="checkbox"/> < 2 years <input type="checkbox"/> 2 – 4 years <input type="checkbox"/> 5 – 7 years <input type="checkbox"/> 8 – 10 years <input type="checkbox"/> 11 – 13 years <input type="checkbox"/> > 13 years
Education Background	<input type="checkbox"/> Diploma holder <input type="checkbox"/> Degree holder <input type="checkbox"/> Master holder <input type="checkbox"/> PhD holder
Job Function	<input type="checkbox"/> Production <input type="checkbox"/> Engineering / Process Development <input type="checkbox"/> Quality <input type="checkbox"/> R&D / Product development <input type="checkbox"/> Logistic <input type="checkbox"/> Marketing / Sales <input type="checkbox"/> Finance <input type="checkbox"/> General Management <input type="checkbox"/> Others, please specify
Job Title	<input type="checkbox"/> Technician <input type="checkbox"/> Assistant Engineer <input type="checkbox"/> Engineer <input type="checkbox"/> Senior Engineer <input type="checkbox"/> Manager <input type="checkbox"/> General Manager <input type="checkbox"/> Director (or higher) <input type="checkbox"/> Others, please specify

(This is the **END** of the questionnaire)

Thanks for your help in completing the questionnaire

Appendix C Descriptive Analysis of Study 1

67% of the respondents are male.

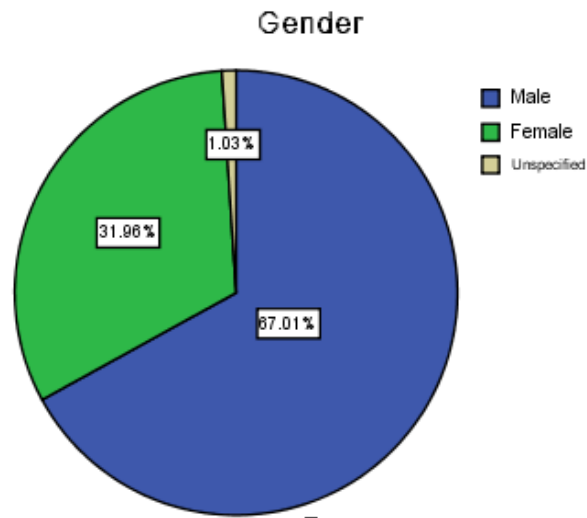


Figure C.1 Distribution of Gender

The following charts summarize the distributions of years of full time working experience, job functions, titles and education levels.

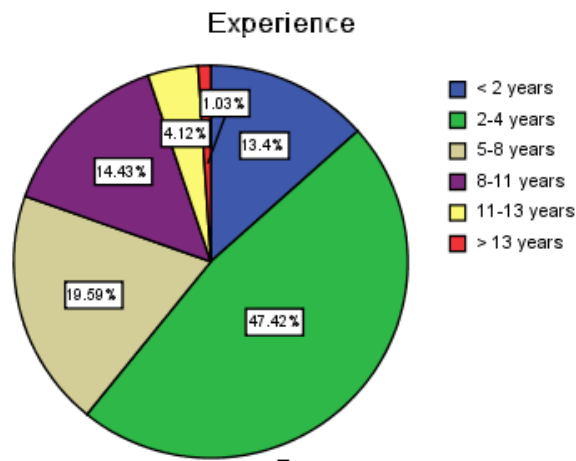


Figure C.2 Distribution of Years of Working

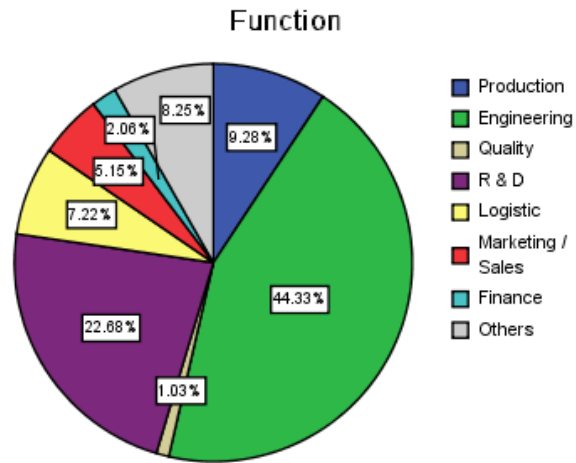


Figure C.3 Distribution of Job Functions

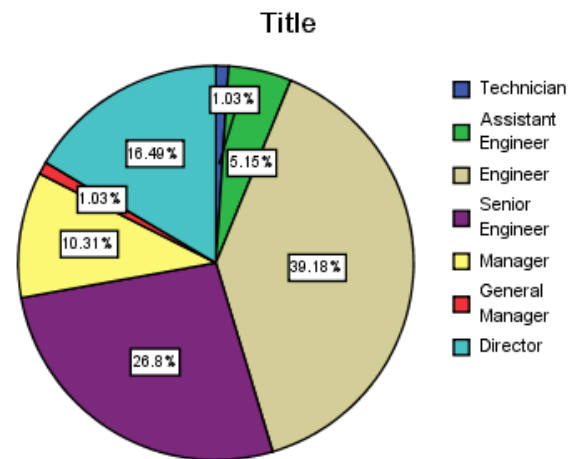


Figure C.4 Distribution of Job Title

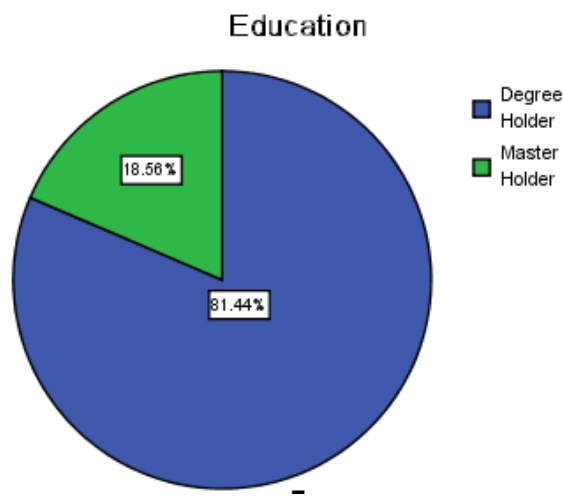


Figure C.5 Distribution of Education

Appendix D Measurement Development of Study 2 and Study 3

Construct	Definition	Direction	Items
Independent Variables _ Knowledge Contribution (1. "strongly disagree"; 7, "strongly agree")			
Reputation Attainment	Any perceived reputation reward from knowledge sharing that the sender considers to be originated from the community.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • RA1: I enhance my reputation in the community when I contribute information or messages. • RA2: I receive gratitude from the community when I help others with questions or problems. • RA3: I obtain a sense of respect from the community when I share knowledge with others.
Sharing Effort	The amount of work and time it takes to successfully complete a knowledge sharing process.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • SE1: I would have had to spend a lot of time to share the knowledge with my recipient • SE2: Sharing the knowledge with my recipient would have required quite some effort • SE3: It would have required a lot of work to share this knowledge with my recipient
Privacy Concern (Chellappa & Sin 2005)	The degree to which the sender is concerned about his personal information.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • PC1: I am sensitive about giving out information regarding my preferences. • PC2: I am concerned about anonymous information that is collected about me (information collected automatically but cannot be used to identify me, such as my computer, network information, operating system, etc.) • PC3: I am concerned about how my personally un-identifiable information (Information that I have voluntarily given out but cannot be used to identify me, e.g., Zip Code, age-range, sex, etc.)
Psychological Safety	The sender's belief that it is safe to admit mistakes to the recipient	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • PS1: I can safely tell about any mistakes I make. • PS2: I feel comfortable telling my recipient about the errors I make. • PS3: It is safe to admit any mistakes I make to my recipient.
Self-worth	The degree to which the sender's inner need to seek impact on others.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • SW1: I like to be admired for my achievements. • SW2: I find satisfaction in having influence over others. • SW3: I enjoy being in positions of power.
Enjoyment	The perceived joy that originates from sharing knowledge.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • EN1: Being able to teach people usually makes me very happy. • EN2: It is a part of my personality to enjoy sharing what I know with other people. • EN3: I typically feel very good when I can share my knowledge with other people.

Altruism	The degree to which a person was willing to increase other people's welfare without expecting returns.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • AL1: I like helping other people. • AL2: Writing and commenting on the community can help others with similar problems. • AL3: I enjoy helping others through the online community.
Reciprocity Expectation	The degree to which there is a reciprocity norm in the relationship between the sender and the recipient	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • RE1: If I do something for my recipient, he/she will do something for me in return in the future. • RE2: My recipient only takes and rarely gives. • RE3: My recipient usually returns favors somehow. • RE4: If I help my recipient, I can expect him/her to help me some other time.
Community Commitment	The sender's perception of attachment to, identification with and involvement in the community	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • CC1: I feel strong ties with my online community. • CC2: I am engaged in the online community activities. • CC3: I am glad to be a member of my online community.
Contributor's Trust	The willingness of the sender to be vulnerable to the actions of the recipient.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • PT1: My recipient would not knowingly do anything to hurt me. • PT2: My recipient really looks out for what is important to me. • PT3: My recipient is very concerned about my welfare.

Independent Variables _ Knowledge Seeking Perspective (1. "strongly disagree"; 7, "strongly agree")

Perceived Effort	The anticipated cost to obtain the knowledge.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • PE1: I expected that it would take a long time to find a solution. • PE2: I expected to receive a response after contacting information source. • PE3: I would not feel indebted to the person after receiving knowledge from him or her.
Psychological Safety	The seeker's belief that it is safe to admit mistakes to the recipient	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • PS1: I can safely tell about any mistakes I make. • PS2: I feel comfortable telling others about the errors I make. • PS3: It is safe to admit any mistakes I make to my knowledge source.
Receptive Mood	The degree to which the seeker is ready or willing to receive ideas, opinions or arguments from others.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • RM1: I am willing to listen to other's new ideas or opinions. • RM2: I am unassuming, open-minded and free from pride and prejudices. • RM3: I am receptive to change and arguments.

Source Availability	The degree to which the seeker perceives that he/she will be able to access the knowledge sources	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • SA1: It would generally be hard for me to get in touch with the people who have the knowledge I need • SA2: In general I could find this person if I wanted to talk to him or her • SA3: He or she would usually be around if I were to need him or her
Information Availability	The degree to which people are provided with resources to access information they are interested in.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • IA1: I have access to a large amount of information that I am interested in • IA2: I have opportunities and tools to find out information that I am interested in • IA3: I have time to find out information that I am interested in
Knowledge Growth	The immediate information for which the seeker initiates the search.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • IN1: I wish I could find an answer to my question when I start the search of knowledge. • IN2: I hope others would provide constructive feedback on my ideas when I start the search of knowledge. • IN3: I hope others could advise me on formulating the problem.
Benevolence-based Trust	The degree to which a person believes that individual will not intentionally harm another when given the opportunity to do so.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • BT1: I assumed that my knowledge source would always look out for my interests • BT2: I assumed that my knowledge source would go out of his or her way to make sure I was not damaged or harmed • BT3: I felt like my knowledge source cared what happened to me
Competence-based trust	A relationship in which an individual believes that another person is knowledgeable about a given subject area.	Please indicate the degree do you agree or disagree with the following statements.	<ul style="list-style-type: none"> • CT1: I believe that my knowledge source approaches his or her jobs with professionalism and dedication • CT2: Given the knowledge source's track record, I see no reason to doubt his/her competence and preparation • CT3: I believe that the knowledge source possesses the information and skill that I require

Moderators _ Social Media Characteristics

Networking Facility		Please indicate how you agree or disagree with the following statements.	<ul style="list-style-type: none"> • NF1: The social media frequently recommends contacts of interest to me. • NF2: I find the recommended connections by the social media are always helpful. • NF3: I always discover interesting contacts from the transverse of my friends' social network. • NF4: I can search and connect with any participant on the social media. • NF5: The friends or contacts from my other online social networking service can be easily imported into this social media platform.
---------------------	--	--	--

Perceived Transparency		Please indicate how you agree or disagree with the following statements.	<ul style="list-style-type: none"> • PT1: I believe the information provided by the knowledge source's/the knowledge seeker's profile is true. • PT2: I can see the complete information on the knowledge source's/the knowledge seeker's profile. • PT3: I can get timely notification if there is any update from the knowledge source/the knowledge seeker on the social media. • PT4: The knowledge source's/the knowledge seeker's friend list is visible to me. • PT5: The review or comment history and record related to the knowledge source/the knowledge seeker is visible to me. • PT6: The community or group discussion activity of the knowledge source/knowledge seeker can be followed up.
Content Integration		Please indicate how you agree or disagree with the following statements.	<ul style="list-style-type: none"> • CC1: I can search and retrieve any information of interest on the online social media. • CC2: The contents or information from other online social media services can be easily imported into this social media platform. • CC3: I can trace back and find the knowledge source's profile if I am interested in the knowledge he supplies. • CC4: The social media will recommend and highlight information of interest to me.
Perceived Interactivity		Please indicate how you agree or disagree with the following statements.	<ul style="list-style-type: none"> • PI1: It is easy for me to initiate a talk with my knowledge source/knowledge seeker. • PI2: I can build up a personal connection with the knowledge source/knowledge seeker on the social media. • PI3: I can interact with the knowledge source/knowledge seeker to in the same discussion group or discussion thread on the social media. • PI4: The social media would enable me to learn or react to others' feedback immediately.

Dependent Variables (1. "Strongly Disagree"; 7. "Strongly Agree")

Knowledge Sharing Attempt	The degree to which the sender actively tries to share knowledge with the recipient.	Please indicate how you agree or disagree with the following statements.	<ul style="list-style-type: none"> • KSA1: I attempted to teach this knowledge to my recipient. • KSA2: I made an effort to transfer this knowledge to my recipient. • KSA3: I tried to share this knowledge with my recipient.
Knowledge Sharing Success	The degree to which knowledge is successfully transferred from the sender to the recipient.	Please indicate how you agree or disagree with the following statements.	<ul style="list-style-type: none"> • KSS1: I successfully transferred this knowledge to my recipient. • KSS2: I was successful in sharing this knowledge with my recipient.

Learning Attempt	The seeker's observable intention to learn the knowledge that the sender tries to share.	Please indicate how you agree or disagree with the following statements.	<ul style="list-style-type: none"> • LA1: I made an effort to acquire the knowledge that the sender transferred • LA2: I tried to learn the knowledge from the sender
Knowledge Learning Success	The degree to which knowledge is successfully learned by the knowledge seeker.	Please indicate how you agree or disagree with the following statements.	<ul style="list-style-type: none"> • KSS1: I successfully learned the knowledge from my knowledge source. • KSS2: I was successful in learning the knowledge from my knowledge source.

Control Variables

Gender	Gender	What is your gender?	<ul style="list-style-type: none"> • Male • Female
Working experience	Length of full-time working experience	What is your estimated length of total full-time working experience?	<ul style="list-style-type: none"> • < 2 years • 2 – 4 years • 5 – 7 years • 8 – 10 years • 11 – 13 years • > 13 years
Education background	Education background	Which degree did you hold?	<ul style="list-style-type: none"> • Diploma holder • Degree holder • Master holder • PhD holder
Job function	Job Function	Which function do you serve?	<ul style="list-style-type: none"> • Engineering / Process Development • Quality • R&D / Product development • Marketing / Sales • Finance • Consulting • General Management • Others
Job title	Job title	Please indicate the title you possess?	<ul style="list-style-type: none"> • Consultant • Business Analyst • Manager • General Manager • Director (or higher) • Others

Appendix E Online Survey of Study 2 and 3 on Knowledge Sharing Behavior on Social Media

Protocol Title: Cater to the Needs: Knowledge Sharing Behavior on Social Media Platform

Online Survey on Knowledge Sharing Behavior on Social Media

Definition of Concepts

We will clarify the most critical concept in this survey before you answering any question.

Social Media – is a group of Internet-based applications that build on Web 2.0 technologies, and that allow the creation and exchange of user-generated content. Social media technologies could take on many different forms including magazines, Internet forums, weblogs, social blogs, microblogging, wikis, podcasts, photographs or pictures, video, rating and social bookmarking.

In this Survey, social media is specified into **social networking services** (i.e., Facebook, LinkedIn and Twitter) popular in western countries, and Chinese version of social networking services popular in Asia includes Renren.com, Kaixin001.com and Weibo.com. Please share with us your social media experiences with Weibo.com, a social media platform with collective Web 2.0 technologies.

Part I—Background information

Please provide true and detailed information, we can

report more accurately on the knowledge sharing trend on online social network. However, you

do not have to answer any question that you feel uncomfortable with.

1. Gender-What is your gender?

Female Male

2. Working experience - What is your estimated length of total full-time working experience?

< 2 years 2 – 4 years 5 – 7 years 8 – 10 years 11 – 13 years > 13 years

3. Education background - Which degree did you hold?

Diploma holder Degree holder Master holder PhD holder

4. Job function - Which function do you serve?

Production Engineering / Process Development Quality
 R&D / Product development Consulting Marketing / Sales Finance
 General Management Others

5. Job title - Please indicate the title you possess?

Consultant Business Analyst Engineer/Senior Engineer Manager
 General Manager Director (or higher) Others

6. Are you a Weibo.com user?

Yes No

Part II—Knowledge contribution

This part will help you to identify and list out the possible reasons

why you would like to share the valuable information, knowledge and experiences to others. Please recall the most recent example that you contribute your knowledge on social media and answer the following questions accordingly. The outcome of the knowledge contribution example can be either successful or not. "This knowledge" herein refers to the knowledge transferred in the example. You only need to indicate how you agree or disagree with the following statements.

1. Knowledge Sharing Attempt - The degree to which the sender actively tries to share knowledge with the recipient.

	Strongly Disagree		Neutral		Strongly Agree
KSA1: I attempted to teach this knowledge to my recipient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
KSA2: I made an effort to transfer this knowledge to my recipient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
KSA3: I tried to share this knowledge with my recipient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Knowledge Sharing Success - The degree to which knowledge is successfully transferred from the sender to the recipient.

	Strongly Disagree		Neutral		Strongly Agree
KSS1: I successfully transferred this knowledge to my recipient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
KSS2: I was successful in sharing this knowledge with my recipient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Sharing Effort - The amount of work and time it takes to successfully complete a knowledge sharing process.

	Strongly Disagree		Neutral		Strongly Agree
SE1: I would have had to spend a lot of time to share the knowledge with my recipient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SE2: Sharing the knowledge with my recipient would have required quite some effort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SE3: It would have required a lot of work to share this knowledge with my recipient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Interaction Frequency - The frequency with which the sender and the recipient communicate on the social media

	Strongly Disagree		Neutral			Strongly Agree	
IF1: I communicate with my recipient regularly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF2: I frequently interact with my recipient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF3: My recipient and I often exchange idea with each other.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Enjoyment - The perceived joy that originates from sharing knowledge.

	Strongly Disagree		Neutral			Strongly Agree	
EN1: Being able to teach people usually makes me very happy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EN2: It is a part of my personality to enjoy sharing what I know with other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EN3: I typically feel very good when I can share my knowledge with other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Provider's Trust - The willingness of the sender to be vulnerable to the actions of the recipient.

	Strongly Disagree		Neutral			Strongly Agree	
PT1: My recipient would not knowingly do anything to hurt me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PT2: My recipient really looks out for what is important to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PT3: My recipient is very concerned about my welfare.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Psychological Safety - The sender's belief that it is safe to admit mistakes to the recipient

	Strongly Disagree		Neutral			Strongly Agree	
PS1: I can safely tell about any mistakes I make.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PS2: I feel comfortable telling my recipient about the errors I make.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PS3: It is safe to admit any mistakes I make to my recipient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Reciprocity Expectation - The degree to which there is a reciprocity norm in the relationship between the sender and the recipient.

	Strongly Disagree		Neutral		Strongly Agree	
RE1: If I do something for my recipient, he/she will do something for me in return in the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RE2: My recipient only takes and rarely gives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RE3: My recipient usually returns favors somehow.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RE4: If I help my recipient, I can expect him/her to help me some other time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Self-worth - The degree to which the sender's inner need to seek impact on others.

	Strongly Disagree		Neutral		Strongly Agree	
SW1: I like to be admired for my achievements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SW2: I find satisfaction in having influence over others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SW3: I enjoy being in positions of power.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Risk Aversion - The tendency of the sender to dislike uncertainty.

	Strongly Disagree		Neutral		Strongly Agree	
RA1: I am generally a cautious person who avoids risk.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RA2: I usually play it safe, even if it means occasionally losing out on a good opportunity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Community Commitment - The sender's perception of attachment to, identification with and involvement in the community.

	Strongly Disagree		Neutral		Strongly Agree	
CC1: I feel strong ties with my online community.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CC2: I identify intense engagement with my online community.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CC3: I am glad to be a member of my online community.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Reputation Attainment - Any perceived reputation reward from knowledge sharing that the sender considers to originate from the community.

	Strongly Disagree		Neutral		Strongly Agree	
RA1: I enhance my reputation in the community when I contribute information or messages.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RA2: I receive gratitude from the community when I help others with questions or problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RA3: I obtain a sense of respect from the community when I share knowledge with others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Altruism - The degree to which a person was willing to increase other people's welfare without expecting returns.

	Strongly Disagree		Neutral		Strongly Agree	
AL1: I like helping other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AL2: Writing and commenting on the community can help others with similar problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AL3: I enjoy helping others through the online community. *	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Privacy Concern (Chellappa & Sin 2005) - The degree to which the sender is concerned about his personal information.

	Strongly Disagree		Neutral		Strongly Agree	
PC1: I am sensitive about giving out information regarding my preferences.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PC2: I am concerned about anonymous information that is collected about me (information collected automatically but cannot be used to identify me, such as my computer, network information, operating system, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PC3: I am concerned about how my personally un-identifiable information (Information that I have voluntarily given out but cannot be used to identify me, e.g., Zip Code, age-range, sex, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part III—Social Media Attribute Please evaluate the social media where the above knowledge contribution example happens.

1. Perceived Transparency- Please indicate how you agree or disagree with the following statements.

	Strongly Disagree		Neutral		Strongly Agree	
PT1: I believe the information provided by the knowledge seeker's profile is true.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PT2: I can see the complete information on the knowledge seeker's profile.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PT3: I can get timely notification if there is any update from the knowledge seeker on the social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PT4: The knowledge seeker's friend list is visible to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PT5: The review or comment on the knowledge seeker's personal homepage is visible to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Networking Facility- Please indicate how you agree or disagree with the following statements.

	Strongly Disagree		Neutral		Strongly Agree	
NF1: The social media frequently recommends contacts of interest to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NF2: I find these recommended connections are always helpful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NF3: I can discover interesting contacts from the transverse of my friends' social network.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NF4: I can search and connect with any participant on the social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NF5: The friends or contacts from my other online social networking service can be easily imported into this social media platform.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Content Connectivity- Please indicate how you agree or disagree with the following statements.

	Strongly Disagree		Neutral		Strongly Agree	
CC1: I can search and retrieve any information of interest on the online social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CC2: The contents or information from other online social media services can be easily imported into this social media platform.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CC3: I can trace back and find the knowledge source's profile if I am interested in the knowledge he supplies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Perceived Interactivity- Please indicate how you agree or disagree with the following statements.

	Strongly Disagree		Neutral		Strongly Agree
PI1: It is easy for me to initiate a talk with my knowledge seeker.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PI2: I can build up a personal connection with the knowledge seeker on the social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PI3: I can interact with the knowledge seeker to in the same discussion group or discussion thread on the social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PI4: The social media would enable me to learn or react to others' feedback immediately.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Perceived Usability- Please indicate how you agree or disagree with the following statements.

	Strongly Disagree		Neutral		Strongly Agree
PU1: The social media is easy for me to use or organize.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PU2: The social media is easy for me to learn to be skillful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PU3: The social media is easy for me to do what I want to do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please note that this is the end of the survey for knowledge contribution behavior. The link to the survey for knowledge seeking behavior will be sent to you in 24 hours. Participation in that survey is voluntary.

Part IV—Knowledge Seeking

This part of the survey will help you to identify and list out the possible factors which affect your knowledge seeking from others. Please recall the most recent example that you search and obtain useful information, knowledge or solutions to question on the social media. Please answer the following questions accordingly. The outcome of the knowledge contribution example can be either successful or not. "This knowledge" herein refers to the knowledge transferred in the example. You only need to indicate how you agree or disagree with the following statements.

1. Learning Attempt - The seeker's observable intention to learn the knowledge that the sender tries to share.

	Strongly Disagree			Neutral			Strongly Agree
LA1: I made an effort to acquire the knowledge that the sender transferred	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LA2: I tried to learn the knowledge from the sender	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Knowledge Learning Success - The degree to which knowledge is successfully learned by the knowledge seeker.

	Strongly Disagree			Neutral			Strongly Agree
KSS1: I successfully learned the knowledge from my knowledge source.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
KSS2: I was successful in learning the knowledge from my knowledge source.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Information needs - The immediate information for which the seeker initiates the search.

	Strongly Disagree			Neutral			Strongly Agree
IN1: I wish I could find an answer to my question when I start the search of knowledge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IN2: I hope others would provide constructive feedback on my ideas when I start the search of knowledge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IN3: I hope others could advise me on formulating the problem.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Perceived Effort - The anticipated cost to obtain the knowledge.

	Strongly Disagree			Neutral			Strongly Agree
PE1: I expected that it would take a long time to find a solution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PE2: I expected to receive a response after contacting information source.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PE3: I would not feel indebted to the person after receiving knowledge from him or her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Codifiability - The degree to which the knowledge inquiry can be written into a document.

	Strongly Disagree		Neutral		Strongly Agree	
COD1: The knowledge inquiry can be recorded into a document.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COD2: The knowledge inquiry can be precisely described and clarified.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Ambiguity - The degree to which the precise chain of cause and effect relationships that lead to an outcome when applying this knowledge is not understood by the seeker.

	Strongly Disagree		Neutral		Strongly Agree	
AMB1: I barely know when this knowledge applies and when it doesn't.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AMB2: I do not understand the circumstances under which this knowledge can be applied.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AMB3: I cannot precisely understand the limitation of this knowledge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Receptive Mood - The degree to which the seeker is ready or willing to receive ideas, opinions or arguments from others.

	Strongly Disagree		Neutral		Strongly Agree	
RM1: I am willing to listen to other's new ideas or opinions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RM2: I am unassuming, open-minded and free from pride and prejudices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RM3: I am receptive to change and arguments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Benevolence-based Trust -- The degree to which a person believes that individual will not intentionally harm another when given the opportunity to do so.

	Strongly Disagree		Neutral		Strongly Agree	
BT1: I assumed that my knowledge source would always look out for my interests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BT2: I assumed that my knowledge source would go out of his or her way to make sure I was not damaged or harmed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BT3: I felt like my knowledge source cared what happened to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Competence-based trust -- A relationship in which an individual believes that another person is knowledgeable about a given subject area.

	Strongly Disagree	Neutral			Strongly Agree
CT1: I believe that my knowledge source approaches his or her job with professionalism and dedication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CT2: Given the knowledge source's track record, I see no reason to doubt his/her competence and preparation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CT3: I believe that the knowledge source possesses the information and skill that I require	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Source Availability -- The degree to which the seeker perceives that he/she will be able to access the knowledge sources

	Strongly Disagree	Neutral			Strongly Agree
SA1: It would generally be hard for me to get in touch with the people who have the knowledge I need	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SA2: In general I could find this person if I wanted to talk to him or her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SA3: He or she would usually be around if I were to need him or her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Information Availability -- The degree to which people are provided with resources to access information they are interested in.

	Strongly Disagree	Neutral			Strongly Agree
IA1: I have access to a large amount of information that I am interested in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IA2: I have opportunities and tools to find out information that I am interested in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IA3: I have time to find out information that I am interested in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Perceived Quality -- The degree to which the information is perceived reliable.

	Strongly Disagree	Neutral			Strongly Agree
PQ1: The information I obtain is trustworthy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PQ2: The information I obtain is accurate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PQ3: The information I get is up-to-date	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Protocol Title: Cater to the Needs: Knowledge Sharing Behavior on Social Media Platform

	Strongly Disagree				Neutral				Strongly Agree
PQ4: The information I get is current	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Perceived Relevance - The level of specificity with which characteristics of the target audience are reflected in the communication.

	Strongly Disagree				Neutral				Strongly Agree
PR1: I feel the solution is relevant to my problem.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PR2: I think the information is relevant to my current circumstances.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PR3: I believe the information or solution is presented in accordance with my learning preferences.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Over-socialized Problem - The state of the knowledge seeker in which the number of social connection exceeds the social capability of knowledge seeker (Jones, et.al, 2004, ISR).

(1) How many connections are in your "Friends" or "Connections" social network?

(2) How many messages do you send with your "Friends" or "Connections" on the social media platform on the average?

- <10 times per week
- 10-100 times per week
- >100 times per week

(3) How much time do you spend with your "Friends" or "Connections" on the social media platform on the average?

- <5 hours per week
- 5-10 hours per week
- >10 hours per week

(4) Please indicate how you agree or disagree with the following statements:

	Strongly Disagree				Neutral				Strongly Agree
SO1: Too many messages are sent from my friends or connections, so that I am unable to respond adequately	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SO2: The network of my connections is overwhelming complicated, it is difficult for me to recognize helpful connection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SO3: I cannot keep regular social interaction with all the connections in my network because of the enormous number of connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Information Overload - The state of the knowledge seeker in which not all information inputs can be processed and utilized, leading to breakdown (Rogers and Agarwala-Rogers 1975).

	Strongly Disagree		Neutral			Strongly Agree
IO1: Too many messages are delivered, so that I are unable to respond adequately	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IO2: The incoming information is not sufficiently organized, it is difficult to recognize information significant to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IO3: The concept the knowledge source is intending to convey is too complex to understand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. Disparity of the Contexts - The degree to which the knowledge seeker understands the origination of the knowledge as well as the disparity of context in the original setting and his/her own setting.

	Strongly Disagree		Neutral			Strongly Agree
DC1: I can follow the discourse stream where the solution is originated from.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DC2: I can recognize the extent to which the solution is impacted by the discussion thread.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DC3: I can identify the difference between my context and the context where the solution originates.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part V—Social Media Attributes This is the last part of the questionnaire, please evaluate the social media where the above knowledge sharing example happens.

1. Perceived Transparency- Please indicate how you agree or disagree with the following statements.

	Strongly Disagree	Neutral			Strongly Agree
PT1: I believe the information provided by the knowledge source's profile is true.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PT2: I can see the complete information on the knowledge source's profile.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PT3: I can get timely notification if there is any update from the knowledge source on the social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PT4: The knowledge source's friend list is visible to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PT5: The review or comment on the knowledge source's personal homepage is visible to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Networking Facility- Please indicate how you agree or disagree with the following statements.

	Strongly Disagree	Neutral			Strongly Agree
NF1: The social media frequently recommends contacts of interest to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NF2: I find these recommended connections are always helpful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NF3: I can discover interesting contacts from the transverse of my friends' social network.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NF4: I can search and connect with any participant on the social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NF5: The friends or contacts from my other online social networking service can be easily imported into this social media platform.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Content Connectivity- Please indicate how you agree or disagree with the following statements.

	Strongly Disagree	Neutral			Strongly Agree
CC1: I can search and retrieve any information of interest on the online social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CC2: The contents or information from other online social media services can be easily imported into this social media platform.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CC3: I can trace back and find the knowledge source's profile if I am interested in the knowledge he supplies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Perceived Interactivity- Please indicate how you agree or disagree with the following statements.

	Strongly Disagree		Neutral		Strongly Agree
PI1: It is easy for me to initiate a talk with my knowledge source.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PI2: I can build up a personal connection with the knowledge source on the social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PI3: I can interact with the knowledge source to in the same discussion group or discussion thread on the social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PI4: The social media would enable me to learn or react to others' feedback immediately.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Perceived Usability- Please indicate how you agree or disagree with the following statements.

	Strongly Disagree		Neutral		Strongly Agree
PU1: The social media is easy for me to use or organize.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PU2: The social media is easy for me to learn to be skillful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PU3: The social media is easy for me to do what I want to do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*This is the end of questionnaire, thank you for your participation! Thanks
 again for your time!*
