Antecedents and Outcomes of Knowledge Sharing Behavior: Moderating Role of Hope

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This study develops and tests a path model based on theory of planned behavior positioning that job engagement leads to commitment which is a predictor of knowledge sharing which leads to organizational innovation. A sample of 354 respondents was collected from information and communication technology (ICT) Industry of Rawalpindi and Islamabad, which are twin cities of Pakistan. Job engagement scale (Schaufeli et al., 2002), knowledge sharing behavior scale (Bock et al., 2005), organizational commitment scale (Mowday et al., 1982), innovation scale (Huang & Li, 2009) and State Hope Scale (Snyder et al. (1991) were used. Using structural equation modelling, the results suggest that job engagement influences organizational commitment which influences knowledge sharing behavior and this behavior ultimately positively leads to innovation. The results further reveal that hope moderates the relationship between commitment and knowledge-sharing behavior. Limitations and future research recommendations are also discussed.

Key words: *Organizational commitment, knowledge sharing, job engagement, organizational innovation, positive psychological states, hope*

Introduction

The world is converting into a knowledge-based economy. In such scenario, organizations are searching for factors that can be a source of competitive advantage. This is why a great deal of management literature focuses on internal resources and competencies. Among them, knowledge is recognized as a crucial factor (Alavi, Kayworth & Leidner, 2005; Kremer,

Villamor, & Aguinis, 2019). It is one of the most valuable assets of the organization and considered as the backbone of learning organizations (Sitar, Bogilović, & Pahor, 2019; Wai, Sandhu & Kishore, 2009). The concept of knowledge sharing has become imperative (Husted & Michailova, 2002; Michailova & Husted, 2003; Liao, 2006). An organization's capability to exchange and use knowledge defines its level of innovation. Knowledge sharing plays an important role in enhancing the innovation of an organization (Liebowitz, 2002; Lin, 2006). Knowledge is a personal phenomenon and knowledge sharing is discretionary. However, organizations can effectively manage their resources to develop a willingness for the workforce to share what they know. If an organization is successful in encouraging its workforce to share what they know, then there is a greater possibility to create new ideas and facilitate innovation (Darroch & McNaughton, 2002). Such an organization is believed to be unique and not easy to be replicated, thus sustaining a high level of innovation (Lin, 2007). Past literature has evidenced that knowledge sharing is an essential factor for boosting innovation (Lin, 2007; Scarbrough, 2003).

Knowledge sharing motivates an individual to think critically, so they are able to innovate (Aulawi, Sudirman, Suryadi, & Govindaraju, 2009; Jantunen, 2005; Liebowitz & Chen, 2001; Nooteboom, 2000). Knowledge sharing is a key to enhance the innovation capability of organizations (Wang & Wang, 2012). Past literature supports the relationship between effective knowledge sharing and innovation (Darroch & McNaughton, 2002; Dougherty, Munir & Subramaniam, 2002; Nonaka & Takeuchi, 1995; Smith, Collins, & Clark, 2005).
A great deal of contemporary literature focus on factors that facilitate knowledge sharing (Bavik, Tang, Shao, & Lam, 2018; Lee, Kim, & Yun, 2018). In this regard, organizational commitment is a very important factor (Nyaga et al., 2010). Knowledge sharing behavior requires a sense of identification, thus commitment leads towards this behavior (Cabrera et al., 2006; Han, Seo, Yoon & Yoon, 2016; Jo & Joo, 2011; Richardson & Newby, 2006; Saks, 2006). Organizational commitment is a psychological factor that is positively linked to one's willingness to share knowledge in the organization (Cabrera et al., 2006; Hislop, 2003). If the commitment is high, then there is an inherent trust that will facilitate communication and further sharing of knowledge within the organization (Wuyts & Geyskens, 2005).

The process of sharing knowledge requires the engagement of individuals (Nahapiet & Ghoshal 1998; Hansen 1999; Szulanski 2000; Reagans & McEvily, 2003). Employees with a high level of job engagement, work harder and develop a feeling of commitment to their work and go beyond formal requirements of the job. They feel honored to work for their organizations. Fully engaged employees can share knowledge because of the level of commitment to the organization. Job engagement actually increases the level of commitment of the employees (Schaufeli & Salanova, 2007). Past literature uncovers a positive relationship between engagement and commitment within an organization (Richardson & Newby, 2006; Saks, 2006).
Another important aim of this study is to examine moderating role of hope. Though yet there

is a lack of direct research backing, an examination of the part that hope might have in developing today's workforce for performance enhancement appears overdue. Precisely, high-hope employees are required for present extremely turbulent situation present in the Information and Communication Technology (ICT) sector of Pakistan. Unluckily, the present ICT sector environment is described as going through rapid changes and mergers, downsizing, bankruptcies, persistently evolving technology, and a 24/7 high competition. Moreover, Pakistan is also even facing additional risk and horrifying consequences of terrorism that cast grey clouds over employee's organizational and personal lives. The present study maintains that if indeed hope may be developed in workforce to handle and cope with this unprecedented situation, then this will also have the additional effect on creation of "highly effective organizational performers". Thus, this study maintains that hope has a substantial influence that needs to be realized and understood to become an important part of human resource development.

Since hope is a decision-making process that enables employees to make good choices (Snyder, 2002) and has been found to alleviate the impact of known risk factors on negative outcomes, existing research also shows that hope acts a "protective factor" while facing stressful occasions (Visser et al., 2013). As hopeful individuals have the ability to actively move towards their set goals and, when require, redirect paths goals (hope) in order to succeed, their fear of sharing knowledge with others diminishes and they do not feel insecure while sharing information. Thus, hope empowers and strengthens employees at risk for sharing knowledge. Accordingly, hope is expected to strengthen the effect of organizational commitment on knowledge sharing behavior.

Rationale of the Study

The current study focuses on finding the antecedents and outcome of KSB and also the moderating role of hope between OC and KSB. The study is novel and original for many reasons. Firstly, extant literature calls for examining outcomes of job engagement (Grobelna, 2019; Saks, 2019). Secondly, the authors suggested to examine KSB in telecom sector (Akram, Lei, Haider, Hussain & Puig, 2017). Thirdly, linking and examining personal resources, e.g., hope to positive organizational behaviors is novel and under-researched in Asian contexts like Pakistan. The majority of researches on hope took place in the United States. This calls for studies examining psychological resources in different cultures (Choi & Lee, 2014). Thus, it is important to investigate hope in a novel work setting. Finally, this research is based on the evidence from ICT sector organizations with a prominent share in the Pakistani economy.

Research Objectives

The study objective is to examine the antecedents and outcomes of knowledge sharing behavior. Subsequently, this study is dedicated to exploring the moderating effect of hope on the relationship between commitment and KSB.

Hypotheses

Four hypotheses were formulated for the study.

1. There is a significant positive impact of job engagement on organizational commitment
2. There is a significant positive impact of organizational commitment on knowledge sharing behavior
3. There is a significant positive impact of knowledge sharing behavior on organizational innovation
4. Hope moderates the relationship between organizational commitment and knowledge sharing behavior, such that the relationship will be stronger for high hope than low hope.

Method

Sample

The sample was comprised of 354 employees working in ICT sector organizations of Rawalpindi and Islamabad, Pakistan. The sample constituted 65 percent males and 35 percent females. The majority of respondents were from the age group of 25-35 years. A convenient sampling technique was used to approach the participants in their workplaces.

Assessment Measures

Following self-report instruments were used in this study to obtain the data along with demographic information Performa.

Organizational Commitment. In this study, organizational commitment was measured through 7-item scale of Mowday et al. (1982) on a 5-point Likert type rating. The internal consistency estimate was found to be 0.90.

Job Engagement. Job engagement was measured through seventeen items scale of Schaufeli et al., (2002) using a 5-point Likert-type scale. This scale comprises of three dimensions and 17 items, i.e., 6 items for vigor, 5 items for dedication, and 6 items for absorption. Authors reported the reliabilities 0.79 (vigor), 0.89 (dedication) and 0.72 (absorption).

Knowledge Sharing Behavior. Five item scale of Bock et al. (2005) was used for knowledge sharing behavior; i.e., 2 items for explicit and 3 items for implicit knowledge sharing behavior. Alpha reliability of 0.930 was reported by authors for this variable.

Innovation. Innovation was measured with 6-items scale developed by Huang and Li, (2009). Alpha reliability of 0.91 was obtained for this variable.

Hope. Four items were used to measure hope. Snyder, Harris, Anderson, Holleran, Irving, Sigmon et al. (1991) developed a dispositional hope scale, a state hope scale (Snyder, Sympson, Ybasco, Borders, Babyak, & Higgins, 1996) and next the state hope scale was adapted by Luthans et al. (2007) to a work-specific hope measure utilized in the 24-item PCQ. Alpha reliabilities of four samples for hope scale reported by Luthans and colleagues were as follows: 0.72, 0.75, 0.80, 0.76, and 0.87.

Procedure

In the first place HR managers of the target organizations were approached to take the permission for data collection. Subsequently, the participants were informed that their participation is completely voluntary and the information provided by them will be kept in anonymity and secrecy. Those who agreed to take part were given questionnaires and were also briefed about the research objectives. After this explanation, the researcher left the organization and came back on appointed date to take the filled questionnaires. Later, data were analyzed using Statistical Package for Social Sciences (SPSS-20) and AMOS.

Results

Data Analysis Approach. The present research performed the model testing using the two-step modeling procedures following Anderson & Gerbing (1988) recommendation. Firstly the measurement models was estimated following the structural model. Measurement model was assessed to ensure the quality of the items measuring study variables. While structural model was used to test the hypothesized relationships (Anderson & Gerbing, 1988; Hair, Andreson, Tatham, & Black, 1998). To test the model, Maximum Likelihood Estimation (MLE) was used for analysis with the help of AMOS structural equation modeling software. The authors first tested the measurement model to assess reliability and validity and then tested the structural model.

Construct Reliability and Validity of Latent Variables. Measurement models are mainly used for two purposes (a) indicate how the latent variables are measured with respect to the observed variables and (b) indicate their reliability and validity (Schumacker & Lomax, 1996). Table I shows reliability statistics for all the variables of the study. The recommended value for reliability is equal to or greater than 0.70 (Hair, Andreson, Tatham, & Black, 1998).

The table shows that all latent constructs had high construct reliability i.e., greater than 0.70; ranging from 0.739 to 0.896 for Cronbachs' Alpha and from 0.713 to 0.950 for composite reliability. Hence, these measures specify that the measurement model is reliable.

Table I. *Reliabilities*

Constructs	Cronbachs' Alpha Reliability	Composite Reliability
Engagement	0.896	0.950
Organizational Commitment	0.791	0.793
Knowledge Sharing	0.739	0.713
Organizational Innovation	0.890	0.817
Hope	0.790	0.773

Table II shows the correlations and the square root of average variance extracted of latent variables of the study. The correlation matrix reveals that all the variables are positively and significantly correlated at p<0.001.

Table 2. *Correlation Matrix of Study Variables (N=354)*

	Constructs	I	II	III	IV	V
I	Engagement	1				
II	Commitment	0.397*	1			
III	Knowledge Sharing	0.686*	0.393*	1		
IV	Innovation	0.590*	0.255*	0.519*	1	
V	Hope	0.618*	0.355*	0.494*	0.484*	1
	($\sqrt{A}$VE)	0.758	0.758	0.578	0.654	0.500

*p<0.001

For validating constructs, the authors confirmed convergent and discriminant validities. The standardized factor loadings greater than the threshold of 0.50 at p < 0.001 establish convergent validity (Fraj, Martinez, & Montaner, 2006). In this study, all the items of knowledge sharing behavior and organizational innovation were retained. These items were

found to have loadings greater than 0.50. However, two items were deleted from job engagement scale due to low factor loadings (1 item from vigor and 1 item from absorption were omitted), leaving the scale with 15 items. Similarly, 1 item out of 7 items was deleted from the organizational commitment scale. Furthermore, the square root of each variable's average variance extracted was found to be greater than its corresponding correlation coefficients. This revealed evidence of discriminant validity (Lee et al., 2007). For details, see Table II.

Also common method variance was examined by applying Harman's one-factor test. The result shows that the % of variance extraction sums of squared loadings were 29% revealing common method bias not an issue (Chang, Witteloostuijn, & Eden, 2010; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Different model fitness indices were considered and examined to assess fitness of measurement and structural models (Ho, 2006).

Table III. *Model Fitness Indices*

Fit Indices	Confirmatory model	Remarks	Structural Model	Remarks
χ^2 / df	925.975/452=2.049	(good fit)	1237.29/455= 2.719	(good fit)
GFI	0.890	(good fit)	0.830	(acceptable fit)
RMSEA	0.055	(good fit)	0.070	(good fit)
CFI	0.897	(good fit)	0.814	(acceptable fit)
TLI	0.876	(acceptable fit)	0.800	(acceptable fit)
IFI	0.898	(good fit)	0.816	(acceptable fit)

Table III exhibits a good and acceptable fit of confirmatory and structural models. These results reveal the suitability of hypothesized associations. The benchmarks are: for χ^2 /df < 3; for GFI, IFI TLI, and CFI close to or > 0.90 represent good fit; for RMSEA, < 0.08 represent good fit (Byrne, 2010; Ho, 2006; Harrington, 2009).

Hypotheses Testing. The authors examined the hypotheses using a structural equation model exhibiting a path model exploring the psychological antecedents (engagement and commitment) and outcomes (organizational innovation) of knowledge sharing. A path was examined finding the impact of job engagement on organizational commitment affecting knowledge sharing and resulting in innovation (*i.e., H₁, H₂ and H₃* respectively). Table IV shows the path coefficients for the hypothesized relationships. The hypotheses were tested by

examining the standardized estimates and their t-values. All the hypothesized relationships were significant ($p < 0.001$).
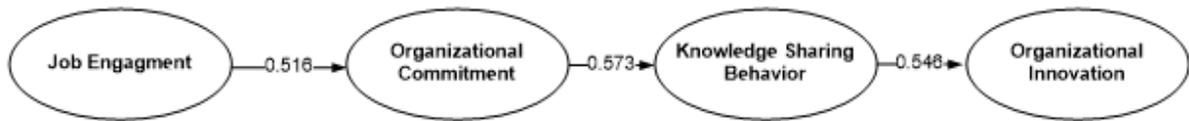

Figure 1. Path Analysis

Table IV. Path Analysis (N= 354)

Hypotheses			Standardized Estimates	Results
1. Engagement	→	Commitment	0.516 ***	Accepted
2. Commitment	→	Knowledge Sharin	0.573 ***	Accepted
3. Knowledge Sharing	→	Innovation	0.546 ***	Accepted

***P<0.001

H4 anticipated that hope moderates the relationship between organizational commitment and KS. For this purpose, an interaction term was introduced in the regression model (Aiken and West' s, 1991). The interaction of organizational commitment and hope was significant using Aiken and West (1991) procedure. They recommend that variables are centered while performing moderation analysis. Thus, organizational commitment and hope were centralized before calculating the interactions. The analysis revealed that the interaction between organizational commitment and hope had a significant positive effect on knowledge sharing behavior (beta = 0.17, $p < 0.05$). The two interaction plots were also depicted in order to further understand the interaction effects that existed. As shown in Figure 2 and 3, the relationship between organizational commitment and knowledge sharing behavior was stronger when employees had higher hope compared to those had lower. Thus, hypothesis 4 was sustained.
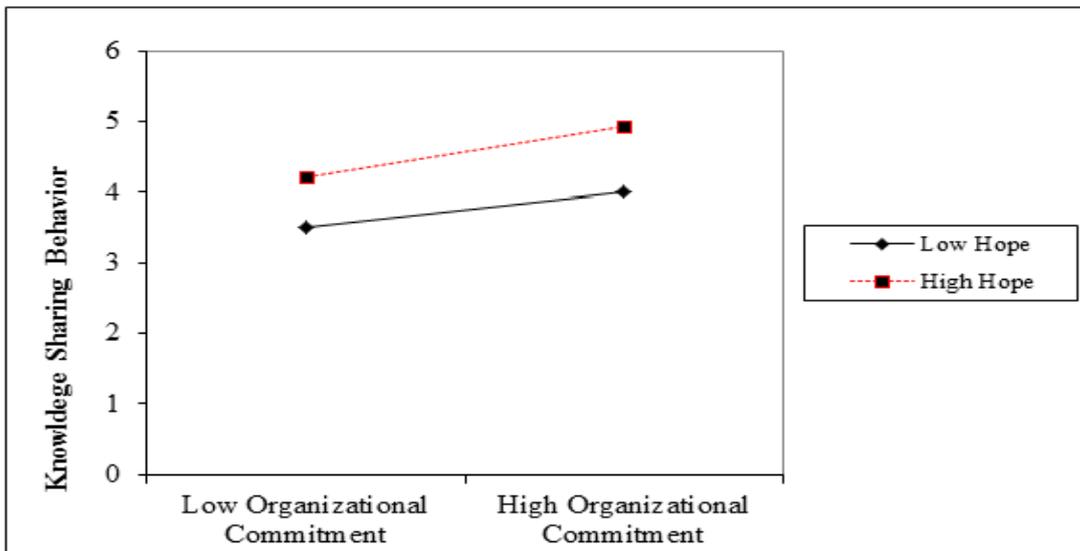
Figure 2. Interaction Effect of Organizational Commitment and Hope on Knowledge Sharing Behavior

In the above figure, the differences of those who were hopeful versus who were not clearly observed the differences, but this effect changes depending on the organizational commitment. However, we don't know anything about the significance of these effects. Thus, using Hayes (2013) process, we draw another graph showing the conditional effect of organizational commitment on knowledge sharing behavior at values of the hope (moderator), including the confidence intervals. Moreover, slope test results are also calculated and confirm the moderation (**Annexure I).**
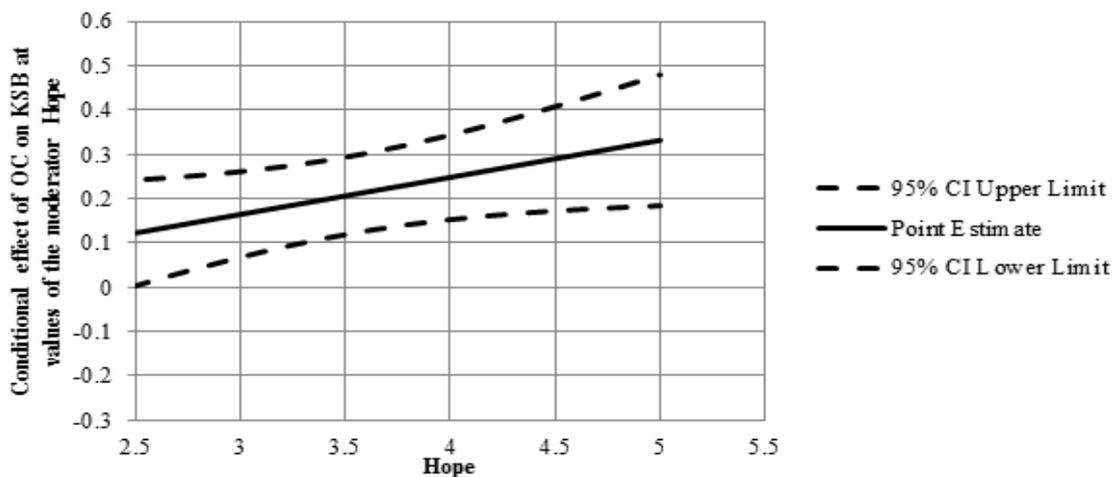

Figure 3. Conditional Effect of Organizational Commitment on Knowledge Sharing Behavior at Values of the Moderator Hope.

Discussion

Knowledge sharing is accepted as one of the most important variables needed to maintain organization's competitive advantage. Much of recent literature is focusing on the concept of knowledge sharing and exploring it from various aspects. However, there is still a lot of need to be done to identify the usefulness and importance of this variable. There are a few researches that explore the psychological antecedents and outcomes of these variables by identifying a path. By suggesting a model identifying a path of engagement effecting commitment that encourages knowledge sharing and resulting in organizational innovation, this research tries to contribute to the existing literature in a novel way. The empirical findings confirm all the proposed hypotheses. The results show that knowledge sharing is not a single variable but a close-knit process. This process starts when employees are engaged within their work. Once they are engaged then the feeling of commitment with the organization arises. Once commitment with organization is there then there is a will to share the acquired knowledge and then it results in innovations of the organization.

The most beneficial outcome of knowledge sharing is innovation. Innovation is the only factor that guarantees sustainability within the business environment. It builds organization's competitive edge upon competitors and in the absence of innovation there is no concept of growth and development (Scholl, 2005). Innovation tends to rely deeply on individuals' knowledge, skill, and experience so, knowledge sharing is a valued input for innovation (Brachos, Kostopoulos, Soderquist, & Prastacos, 2007; Chiang, & Hung, 2010; Gachter, Krogh, & Haefliger, 2010). The level of organization's innovation is defined by its ability to share and use knowledge. If organization succeed in creating the process of knowledge sharing within an organization then they find new ways of doing things (Darroch & McNaughton, 2002; Liebowitz, 2002; Lin, 2006; Lin, 2007). Knowledge sharing is one of the most important factors for boosting organizational innovation (Calantone et al., 2002; Lin, 2007; Scarbrough, 2003).

Knowledge sharing is testing human nature as it is difficult to access knowledge from other people within the organization despite having a good relationship (Cabrera & Cabrera, 2002; Bartol & Srivastava, 2002). However, if employees are committed to their work their resistance decreases. Committed employees are more likely to share the knowledge with their colleagues (Jo & Joo, 2011). Employees' positive attitudes are always expressed in the form of higher knowledge-sharing behavior. Organization commitment is the extent to which employee relates to the organization and willing to set building up effort for its benefit thus resulting in knowledge sharing behavior (Wuyts & Geyskens, 2005).

Organizations make a lot of efforts to keep employees committed and one of those efforts is to create engagement. Job engagement is the main source to increase employee commitment (Richardson & Newby, 2006; Saks, 2006; Schaufeli & Salanova, 2007). A possible

description of this finding is that employees who are physically, cognitively, and emotionally involved within their work role would feel an attachment with their organization. Such employees go beyond their formal requirements and be a source of sharing all the beneficial knowledge within the organization (Reagans & McEvily 2003; Richardson & Newby, 2006; Saks, 2006; Szulanski, 2000).

The findings of this research paper also confirm that hope moderates the relation between organizational commitment and knowledge sharing behavior, such that this association between organizational commitment and knowledge sharing behavior is significant and positive. Employees with organizational commitment seem to exhibit more knowledge sharing behavior; however, it is a discretionary behavior and employees are confronted with risk and challenges to share their knowledge (Lin, 2007; Mittal & Dhar, 2015; Wang & Hou, 2015); therefore, employees require positive personal resources such as hope to overcome this fear. Conceptualizing goals, developing ways to achieve them, and initiating and keeping the motivation to obtain them are components of hope (Linley & Joseph, 2004). Hope strengthens employees with positive psychological characteristics, attempts to expand their range of activities in the workplace. Likewise, they think sharing information with other co-workers is an effective move in their personal and organizational development; therefore, employees experience more support from positive psychological states (hope) and accept the importance and share the responsibility with the management in the knowledge sharing process (Raymark, Schmit & Guion,1997).

Positive workers have more positive social behavior and superior communication skills. Recently a study found that individuals are reluctant to communicate with and take knowledge from negative individuals (Cameron, 2008). This reflects that social capital is one of the outcomes of knowledge sharing which in turn results in human development. Psychological capital leads to developing both social and human capital (Ghazinour, Sharafi, Mahabadi, Forouhar, & Riahi, 2014). In work settings, individuals having more positive psychological capacities are less risk-averse and also display more desirable organizational as well as social behavior. Consequently, individuals in the presence of hope exhibit more knowledge sharing behavior, which is determined by organizational commitment. In the existence of lower hope, individuals seem to have fear and controlling behavior; therefore, employees refrain from sharing knowledge. Having said that it could be concluded that, people with high levels of hope have the "will" and the "ways" to realize goals (Snyder et al., 1991).

Limitation and Future Research. The findings of this research must be deemed in the light of its limitation. Similar to various researches in this area, this research used self-reported and cross-sectional data. This limits the generalizability of the study. Future researches should replicate the research by using a longitudinal design and a dyadic approach. Moreover, uni-dimensional measures of all the variables were used. Future researches should examine this

path in more detail by using multi-dimensional measures. This research was also conducted in only one sector that is ICT sector in Pakistan. Future researches may replicate this study in different sectors and cultures. Other variables may be included in the path to examine how to boost knowledge sharing e.g., leadership, personality traits, or emotional intelligence. Moreover, hope is one factor and there are other positive psychological capacities (e.g., optimism, resilience, emotional intelligence) that need to be tested in the future. Future studies need to test the situation when employees share knowledge that could be inconsistent with others' perspective.

Finally, future research on knowledge sharing needs to be based on the social exchange theory also. This theory refers that employees shall behave according to rational self-interest. Therefore, knowledge sharing will be stimulated only when what they receive is valuable to them. This transaction can be based on either intrinsic or extrinsic factors, depending on what is more valuable. Therefore, it is interesting to test whether this stimulation is beneficial in encouraging an employee to share what they know and what type of inducement shows a substantial role.

Practical Implications. The research argues that knowledge sharing behavior is very important within learning organizations. For this argument, this study presented supporting an initiative that such a positive behavior of employees leads towards organizational innovation. Thus, it is suggested that to promote this behavior, the organization should form knowledge management groups composed of coordinators who can look after, motivate and facilitate such initiatives. Organizations should be aimed at motivating and supporting employee knowledge sharing behavior at all levels. This study has provided a path that leads towards this behavior.

It is expected that the model may contribute to organizations' efforts in understanding and embracing knowledge sharing behavior through employee engagement and organizational commitment. We believe that the proposed model may serve as a sound roadmap towards creating a more "knowledge sharing workforce" in workplaces as it addresses the key antecedents of knowledge sharing. In particular, to foster this positive behavior, managers can consider creating a committed workforce. Likewise, to develop committed workers organization can count on employees' engagement. Another practical implication of the model is that organizations may consider providing employees with culture that would activate a reciprocity norm among them.

Moreover, this research takes managers attention to the important role of positive psychological states such as hope in the work setting. Thus, to facilitate knowledge sharing behavior, it is imperative for organizations to consider their employees positive resources. Hope plays an important role in organizational psychology by promoting positive and bright outlook of future by focusing on their goals through *will and ways* and enhances the

relationship between organizational commitment and knowledge sharing behavior. Top management should focus on proper intervention to encourage positive psychology at all levels in the workplace (Mayer, Aquino, Greenbaum, & Kuenzi, 2012). The results of this research are also useful for the ICT industry in dealing with frequent changes in the dynamic environment by calculating work engagement, organizational commitment, hope and knowledge sharing in ways that support organization innovation. Research has shown that hope is "rainbow in mind", which can be developed in individuals. Therefore, managers should conduct training and interventions to build psychological capacities in employees.

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Annexture I

Moderation of the effect of Organizational Commitment on Knowledge sharing behavior at values of the moderator Hope