

Employees' Online Knowledge Sharing: The Effects of Person-Environment Fit

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Abstract

Various environmental and individual factors influencing employees' online knowledge sharing have been identified but our understanding has mostly been limited to their independent and direct effects. This study proposes that the fit between employees and their environments (PE fit) matters. A model explaining how PE fit and misfit affect employees' knowledge sharing behavior through influencing their affective commitment is proposed and assessed. The proposed model was assessed with data collected in a Survey of 218 employees. Results indicate that PE fit in the norm of collaboration, innovativeness, and skill variety leads to the development of stronger affective commitment and therefore more knowledge sharing behavior than when they are in shortfall or excess in the environment (i.e., PE misfit). The findings indicate a new direction for knowledge sharing research that focuses on PE fit and suggest that knowledge sharing can be improved more proactively in practice by assessing PE fit during recruitment.

Keywords: Online knowledge sharing, person-environment fit, affective commitment, culture

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1 Introduction

Employees' knowledge sharing has been a key focus in knowledge management (KM) research (Bock et al. 2005; Mohammadbashir et al. 2016; Riege 2005; Titi Amayah 2013; Wang and Noe 2010). Knowledge sharing involves converting knowledge into an appropriate format for the recipient and making this knowledge available to one or more organization members (Ipe 2003). As knowledge sharing is a voluntary, pro-social behavior (Jarvenpaa and Staples 2001), many studies have been conducted to identify individual factors (e.g., motivation, personality work, experience) and environmental factors (e.g., organization culture) driving the behavior (Ipe 2003; Riege 2005; Vincenzo et al. 2015; Wang and Noe 2010).

Although prior studies have increased our awareness of individual and environmental factors influencing knowledge sharing, our understanding has mostly been limited to their independent and direct effects. For instance, the norm of collaboration, an aspect of organization culture, has been shown to be a significant driver of employees' knowledge sharing (e.g., He and Wei 2009). This suggests that nurturing the norm of collaboration in an organization should promote employees' knowledge sharing. Yet, research on interactional psychology and trait activation (Terborg 1981; Tett and Guterman 2000) indicates that different employees may interpret and respond to environmental stimuli differently. Employees who prefer to work independently may react negatively to policies that enforce collaboration. This suggests that studying the congruence or fit between employees and their organizations can potentially lead to a fuller understanding of the effect of environmental and individual factors influencing knowledge sharing.

KM researchers have recognized the relevance of understanding the effect of person-environment fit. A review of studies on knowledge sharing highlights that prior studies have mostly focused on independent effects and it is useful for future studies to examine the relationship between individual and environmental factors based on the interactional psychology and trait activation perspectives (Wang and Noe 2010); Argote et al. (2003) suggest that the fit between employees (which is a unit of KM) and the environment can predict KM outcomes in organizations; Cabrera and Cabrera (2005) recommend hiring employees based on

their fit with the organization in order to create a community that values learning and knowledge development; Similarly, Edvardsson (2008) suggests organizations to emphasize “a fit between organizational culture and hiring of suitable personalities, as well as the socialization of individuals into the culture of the firm” (p. 555) to enhance the success of KM. Despite these, there has been a lack of empirical studies on the effect of person-environment fit on employees’ knowledge sharing.

To address the gap, this study proposes a model that explains the effect of person-environment fit on employees’ knowledge sharing and empirically assesses the model. Based on the person-environment fit (PE fit) framework, our proposed model distinguishes between supplementary fit and complementary fit and hypothesizes their differential effect. Supplementary fit refers to similarity in values and norms between employees (i.e., value congruence) and their organizations, while complementary fit refers to the extent to which employees’ psychological needs are fulfilled by working in their jobs (i.e., needs-supplies congruence; Kristof-Brown et al. 2005; Muchinsky and Monahan 1987). Since knowledge sharing benefits other organization members and the organization as a whole, we expect supplementary fit to have a stronger effect than complementary fit. Based on a review of KM and PE-fit literatures, we also hypothesize that affective commitment is a key factor mediating the effect of PE fit. Results of a survey of 218 employees showed some support for the proposed model.

This study contributes to research and theoretical development in several ways. First, the proposed model extends our theoretical understanding of environmental factors and individual factors by looking beyond their independent effects and showing that person-environment fit matters in employees’ knowledge sharing. Further, the model clarifies the relative effects of supplementary fit and complementary fit. Second, this is one of the first studies to empirically assess the effect of PE fit on knowledge sharing. The findings support KM researchers’ general belief that PE fit can significantly affect employees’ KM behavior (Argote et al. 2003; Cabrera and Cabrera 2005; Edvardsson 2008). Third, our proposed model also contributes to KM research by explaining how PE fit influences knowledge sharing through affective commitment. For practitioners, the findings indicate the potential of promoting

knowledge sharing more proactively by considering PE fit in the recruitment process, as well as by addressing the job-related needs of employees (i.e., enhance complementary fit).

2 Conceptual Background

The PE fit framework is first described. The KM literature is then reviewed to conceptualize PE fit in the context of knowledge sharing.

2.1 Person-Environment Fit Framework

The concept of PE fit was first proposed by Plato (Kaplan 1950) and further developed by vocational psychologists such as Dawis et al. (1964) and Holland (1959). The concept has its roots in interactional psychology (Kaplan 1950), which recognizes that individuals' attitudes and behaviors are determined jointly by their personal characteristics and their environments. The core premise of the PE fit framework is that when individuals and their environments are compatible, their attitudes and behaviors are likely to be positive (Kristof-Brown et al. 2005). In contrast, PE misfit can generate dysfunctional attitudes and behaviors. There are two types of fit: supplementary fit and complementary fit (Kristof-Brown et al. 2005; Muchinsky and Monahan 1987).

Supplementary fit occurs when a person “supplements, embellishes, or possesses characteristics which are similar to other individuals” in an environment (Muchinsky and Monahan 1987, p. 269). In determining supplementary fit, the person makes an assessment of the other people in the environment and decides whether he or she is compatible with them. Employees perceive supplementary fit when they see themselves as having similar values, norms, culture, climate, or goals as other organization members (hereafter collectively referred to as values; Kristof-Brown 1996). These aspects determine beliefs about desirable behaviors or end states. They guide the selection of behavior and transcend specific events or objects (Cable and Edwards 2004). Supplementary fit is most typically studied in research by examining value congruence (Cable and Edwards 2004) or person-culture fit (O'Reilly III et al. 1991) between employees and organizations (e.g., whether an employee and an organization both consider the norm of collaboration to be important; Cable and Edwards 2004). The PE fit framework suggests that an employee will find it comfortable working in an organization where the values

important to the employee are also significant to other members in the organization (O'Reilly III et al. 1991). This is because sharing common values enables one to communicate more effectively with others and better predict the outcomes of social interactions.

Complementary fit occurs when the needs or desires of a person are fulfilled by the environment and vice versa (Kristof-Brown et al. 2005; Muchinsky and Monahan 1987). The basis for a good fit is the offsetting pattern of relevant characteristics between the person and the environment. Complementary fit can therefore mean that an organization offers the rewards or resources that an individual wants, or that an employee has a skill set that an organization requires. In PE fit research, complementary fit from the employees' perspective is exemplified by studies on psychological need fulfillment (Cable and Edwards 2004). An important psychological need of employees at work is experienced meaningfulness, which is the extent to which a job is worthwhile or valuable, judged in relation to individuals' own ideals or standards (Hackman and Oldham 1975; Kulik et al. 1987; May et al. 2004). Individuals have a primary motive to seek meaning in their work and a work design that is experienced as meaningful by employees should facilitate their personal growth, as well as motivate positive work attitudes and behavior (May et al. 2004). In contrast, lack of meaning in one's work can lead to negative attitudes and behaviors such as alienation or "disengagement" from one's work.

2.2 Supplementary Fit – Salient KM Values in Organizations

PE fit research has studied supplementary fit in terms of a variety of different values, norms, culture, climate, and goals. The values examined should be relevant to the context of study. Since our dependent variable of interest is knowledge sharing, we focus on two KM-related cultural values that have been emphasized and commonly studied in KM research: norm of collaboration (Abrams et al. 2003; Bock et al. 2005; De Long and Fahey 2000; Goh 2002; Jones et al. 2006; Kankanhalli et al. 2005; Kim and Ju 2008; McDermott and O'Dell 2001; Widén-Wulff and Ginman 2004; Yang and Chen 2007; Yang 2007; Zahra and Mohammad 2010; Zakaria et al. 2004) and innovativeness (Bock et al. 2005; Chen et al. 2010; Chen et al. 2012; Liao 2006; van den Hooff and Huysman 2009; Xue et al. 2011; Yu et al. 2010).

Norm of collaboration refers to the extent to which members in an organization are expected

to cooperate with one another and engage in teamwork (Kankanhalli et al. 2005). Reciprocity is a key element in sustaining collaborations (Gächter and Herrmann 2009) as free riding (i.e., lack of reciprocity) is likely to be viewed as an unkind act that prompts others to withdraw cooperation to punish the free rider (Gächter and Herrmann 2009). Many KM researchers have emphasized the importance of nurturing a collaborative norm to promote knowledge sharing (e.g., De Long and Fahey 2000; Goh 2002; Jones et al. 2006; Zakaria et al. 2004). Collaborations increases interaction among employees, which is likely to lead to knowledge sharing (De Long and Fahey 2000). When the norm of collaboration is strong, employees are also likely to be less bothered about the effort required to share knowledge since others are likewise sharing in reciprocity (Kankanhalli et al. 2005). Supporting this, some prior studies have found evidence for the significant effect of collaborative norm or climate on knowledge sharing (Bock et al. 2005; Kim and Ju 2008; Yang 2007; Zahra and Mohammad 2010; see Table 1). However, others have observed an insignificant effect (e.g., Kankanhalli et al. 2005; Yang and Chen 2007). A plausible explanation for the inconsistent finding is that the effect of collaborative norm may depend on other factors (Kankanhalli et al. 2005). This study explores whether the effect of collaborative norm depends on whether it matches employees' values (i.e., PE fit in collaborative norm). The finding is expected to augment our existing understanding of the effect of collaborative norm on knowledge sharing.

Innovativeness refers to the extent to which organization members are expected to be creative, emphasizes learning, open to conflicting views, and engages in experimentation and risk taking (Bock et al. 2005; Kankanhalli et al. 2005). Innovativeness manifests in openness to new ideas (Hurley and Hult 1998), where diversity is respected and experimental failures are tolerated and employees can feel free to contribute novel ideas. Innovation is inherently knowledge-intensive and necessitates knowledge sharing. Innovativeness also promotes knowledge sharing by instilling it as a "way of work", a part of how an organization pursues its goals, such that there is little need to promote knowledge sharing explicitly (McDermott and O'Dell 2001). Indeed, prior studies found that the climate of innovativeness is significantly related to employees' knowledge sharing (see Table 2).

Table 1. Review of Knowledge Management Studies on Norm of Collaboration		
Study	Finding related to Norm of Collaboration	Method and Final Sample
Bock et al. (2005)	Extent to which employees cooperate well (part of affiliation in organization climate) → Intention to share knowledge	Survey of 154 employees from 27 organizations in Korea
De Long and Fahey (2000)	When norms and practices promote collaboration between functions and operating units, interactions are more likely to lead to sharing knowledge	Conceptual discussion
Goh (2002)	Collaboration → Propensity to share knowledge	Conceptual proposal
Jones et al. (2006)	Orientation to collaboration → Knowledge sharing during enterprise resource planning system implementation	Multi-site case study of four firms in the petroleum industry
Kankanhalli et al. (2005)	Norm of collaboration and cooperation (part of pro-sharing norms) did not have a significant effect on knowledge contribution	150 employees in 10 public organizations in Singapore
Kim and Ju (2008)	Collaboration → Knowledge sharing	78 faculty members in an academic institution in South Korea
McDermott and O'Dell (2001)	Collaborating is a core cultural value that enable people to share their knowledge	Interview of 5 companies in the United States
Yang (2007)	Collaboration among co-workers in a work group, immediate superiors, business units → Knowledge sharing	Survey of 499 hotel employees in Taiwan
Yang and Chen (2007)	Cooperative and collaborative culture (part of cultural knowledge capabilities) did not have a significant effect on knowledge sharing behavior	278 Master's students (who worked as executive managers) in Taiwan
Zahra and Mohammad (2010)	Extent to which organization members cooperate well with each other → Subjective norm → Intention to share knowledge	502 employees in oil companies in Iran
Zakaria et al. (2004)	Creating a collaborative interactive space can encourage employees to engage in a regular and frequent reciprocal cross-cultural exchange of ideas	Conceptual discussion

Table 2. Review of Knowledge Management Studies on Innovativeness		
Study	Finding related to Innovativeness	Method and Final Sample
Bock et al. (2005)	Innovativeness (part of organizational climate) → Intention to share knowledge	Survey of 154 employees from 27 organizations in Korea
Chen et al. (2010)	Innovative climate → Knowledge sharing	Survey of 150 firms in Taiwan
Chen et al. (2012)	Innovativeness (part of organizational climate) → Intention to knowledge sharing	Survey of 134 employees in 770 electrical manufacturing firms in Taiwan
Liao (2006)	Open-mindedness → Knowledge sharing behavior	Survey of 254 employees in Taiwan
Xue et al. (2011)	Innovation (part of team climate) → knowledge sharing behavior	Survey of 434 students in a large university in the United States
Yu et al. (2010)	Openness → Sharing culture → Knowledge sharing behavior	Survey of 442 members of three professional virtual communities in Taiwan
van den Hooff and Huysman (2009)	Extent to which staff are encouraged to innovate (part of organization culture) → Structural social capital → Knowledge sharing	Survey of 541 employees in six organizations

2.3 Complementary Fit – Employees’ Psychological Need

Research on complementary PE fit identifies experienced meaningfulness as an important psychological need that employees seek to fulfill while working in their jobs (Hackman and Oldham 1975; Kulik et al. 1987; May et al. 2004). Experienced meaningfulness of a job is determined by its skill variety, task identity, and job autonomy (Hackman and Oldham 1975).

Skill variety refers to the diversity of skills and talents required to carry out activities in a job (Hackman and Oldham 1976). Jobs that are high in skill variety are generally seen by employees as more challenging and give employees a greater sense of competence because of the range of skills needed. Skill variety also relieves monotony that results from repetitive activity. In contrast, jobs that are low in skill variety are often experienced as dull and generate the feeling of meaninglessness.

Task identity refers to the degree to which employees complete a “whole” and identifiable piece of work, that is, doing a job from beginning to end with a visible outcome

(Hackman and Oldham 1976). A job with high task identity allows employees to follow through the main stages to “provide a complete unit of product or service” (Hackman and Oldham 1976, p. 257) instead of just an indistinguishable part.

Job autonomy refers to the degree of freedom, independence, and discretion in scheduling work and determining the procedures for carrying out activities in a job (Hackman and Oldham 1976). In high-autonomy jobs, job outcomes depend more on employees’ efforts, initiatives, and decisions rather than on the adequacy of instructions from supervisors or adherence to standard operating procedures. High-autonomy jobs offer employees a perception of active control over their environment to make it less threatening and more rewarding (Ganster and Fusilier 1989). This allows them to experience their role at work as being more worthwhile and significant.

The significance of skill variety, task identity, and job autonomy in KM has been recognized in research. For instance, job autonomy has been found to promote cooperative learning in systems development teams (Janz and Prasarnphanich 2003), solution innovation among technical support analysts (Durcikova et al. 2010), as well as knowledge sharing among employees (Cabrera et al. 2006; Foss et al. 2009; Yang and Chen 2007). Prior studies have also shown that enriching jobs by increasing the levels of all three job characteristics can improve the task performance of knowledge workers (compared to manual workers; Yan et al. 2011) and employees’ engagement in sharing knowledge through corporate Wikis.

2.4 Effects of Person-Environment Fit and Misfit

The PE fit research shows that when there is a fit between employees and their environment, they are likely to develop positive attitudes and behaviors such as strong organizational commitment, high job satisfaction, and pro-social behavior (Kristof-Brown et al. 2005; Verquer et al. 2003). In contrast, a misfit can lead to the development of deleterious attitudes and behaviors. From employees’ perspective, misfit can occur in two ways: when the environment’s level falls short of an employee’s desired level, or when the environment’s level exceeds an employee’s desired level. The PE fit framework posits that when the environment falls short, employees’ attitudes and behavior are likely to develop negatively. However, when the environment exceeds employees’ desired level, employees’ attitudes and behaviors may start

to develop negatively, remain constant, or continue to develop positively (Harrison 1978; Yang et al. 2008).

Employees' attitudes and behaviors are likely to decline when the excess generates strain (see broken line in Figure 1). For example, when the norm of collaboration in an organization exceeds one's desired level, it may hinder one's need for independence; when the skill variety required by a job exceeds the level tolerable by an employee, the employee may experience stress in trying to meet the demand. Employees' attitudes and behaviors are likely to continue to remain constant when the excess does not generate strain and cannot be preserved to meet future or other needs (see solid line in Figure 1). When the excess can be preserved to meet future or other needs, attitudes and behaviors are expected to continue to develop positively. The values and needs examined in this study are all hypothesized to decline when they are in excess in the environment, as justified in the next section.

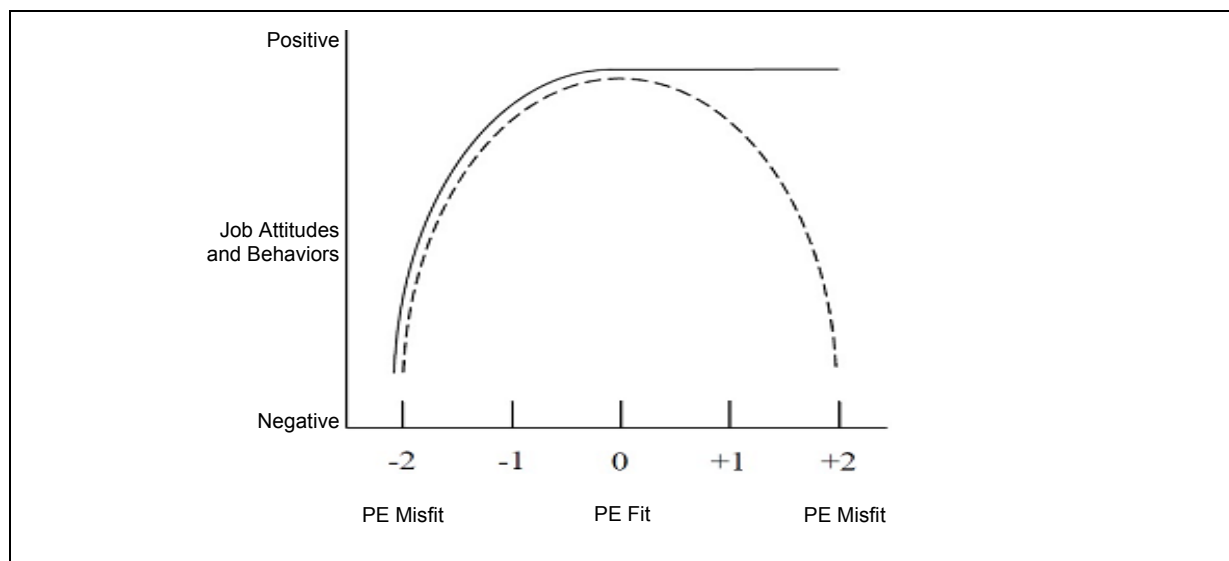
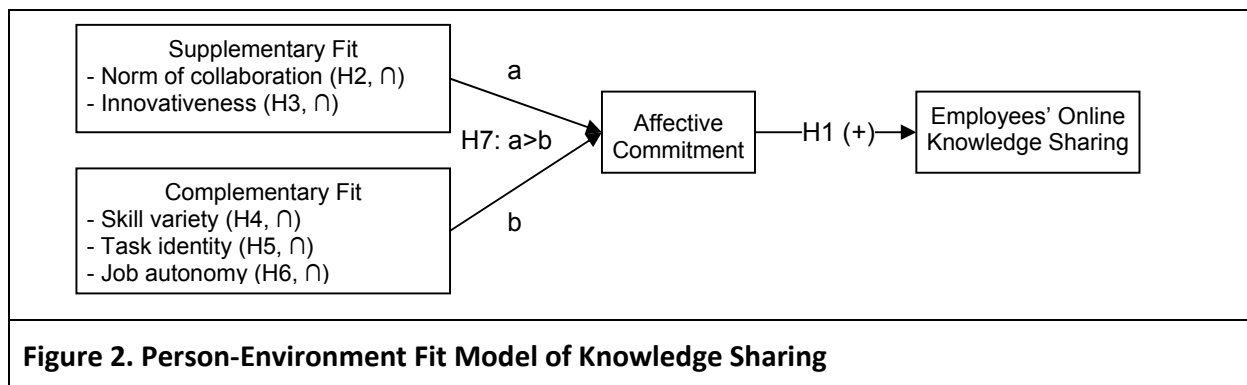


Figure 1. Effect of PE Fit and Misfit on Job Attitudes and Behaviors

3 Theoretical Development of Model and Hypotheses

This study's objective is to model and assess the effect of PE fit on employees' knowledge sharing. Based on the PE fit framework, we distinguish between supplementary fit and complementary fit in the proposed model (see Figure 2). Our review of the KM and PE fit literatures indicates that supplementary fit in the norm of collaboration and innovativeness (i.e., value congruence), and complementary fit in skill variety, task identify, and job autonomy

(which satisfy employees psychological need for meaningfulness) are likely to affect knowledge sharing. Based on the PE fit framework and the nature of the values and psychological need considered in this study, we hypothesize that PE misfit (both shortfall and excess in the environment) leads to the development of negative attitudes and behaviors. That is, PE fit has a curvilinear, n-shaped effect. Distinguishing between supplementary fit and complementary fit also allows us to understand their relative effect – we hypothesize that supplementary fit has a stronger effect than complementary fit in the context of employees' knowledge sharing. To explain the mechanism through which PE fit affects knowledge sharing, we hypothesize that affective commitment significantly mediates the effect of PE fit on knowledge sharing. The mediator was identified based on PE fit and KM literatures, as discussed next.



Mediating Effect of Affective Commitment

The PE fit framework posits that PE fit influences employees' attitudes and behaviors (Kristof-Brown et al. 2005). It is well established that external, environmental variables influence individuals' behaviors through shaping attitudes (Fishbein and Ajzen 1975; Glasman and Albarracín 2006). Accordingly, we posit that PE fit influences employees' attitude, which in turn influences their knowledge sharing behavior.

Employee attitudes that have been examined as effects of PE fit include organizational commitment, job satisfaction, and intention to quit (Hoffman and Woehr 2006; Kristof-Brown et al. 2005; Verquer et al. 2003). Among them, organizational commitment has been found to influence employees' knowledge sharing directly (e.g., Lin 2007). Organizational commitment reflects a general attitudinal response to the employing organization as a whole (Mowday et al. 1979). Since we intend to understand the effects of person-environment fit, we consider

organization commitment to be relevant for our model. More importantly, organizational commitment is germane to online knowledge sharing because it is an extra-role, pro-social behavior that seeks to benefit the organization and its member in general. Knowledge shared online resembles a public good that could be exploited by any other employee regardless of whether they contributed to its provision (Cabrera and Cabrera 2002); The knowledge shared may be accessible to people whom the knowledge source do not trust; The lack of reciprocation by beneficiaries is more difficult to detect online; Employees may also perceive a greater loss of knowledge power as knowledge shared online is stored electronically and remains accessible long after it is posted. Knowledge sharing also involves significant costs, such as time and codification effort. These suggest that employees are likely to be more willing to share knowledge when they feel attached to their organizations (Mowday et al. 1979).

Organizational commitment has been conceptualized in terms of affective, continuance, and normative commitment (Meyer and Allen 1991). *Affective commitment* refers to an employee's emotional attachment to, identification with, and involvement in the organization. *Continuance commitment* refers to an awareness of the costs associated with leaving the organization. *Normative commitment* reflects a feeling of obligation to continue employment. Among them, affective commitment has been found to be a strong predictor of employees' willingness to share knowledge whereas normative and continuance commitment do not have significant effects (Meyer and Allen 1991). Employees who *want* to belong to an organization (affective commitment) are likely to exert extra effort to maintain their membership in the organization than those who *need* to belong (continuance commitment) or *feel obligated* to belong (normative commitment). Therefore, we focus on affective commitment in this study.

Prior studies have shown that affective commitment motivates employees to contribute to their organizations' development by engaging in organization citizenship behaviors (e.g., Paré and Tremblay 2007), which are voluntary behaviors that are neither part of an employee's role requirements nor formally rewarded by the organization (Organ and Ryan 1995). Knowledge sharing is largely a voluntary, organization citizenship behavior that cannot be forced (King and Marks Jr 2008). Some evidence suggests that affective commitment may be related to knowledge sharing to electronic repositories. For example, Lin (2007) found that

organizational commitment (measured in terms of affective commitment) is positively related to employees' sharing of job experience, expertise, ideas, and tips with co-workers; (Jian et al. 2015) showed that affective commitment influences knowledge sharing through shaping psychological ownership; Matzler et al. (2011) found that affective commitment influences the documentation of knowledge in the written form. Hence, we hypothesize that:

H1: Employees' affective commitment mediates the effect of PE fit on their knowledge sharing behavior.

Effect of Supplementary PE Fit

Norm of collaboration refers to the extent to which members in an organization are expected to cooperate with one another and engage in teamwork (Kankanhalli et al. 2005). For employees who value and enjoy collaborations with others, working in an organization with a weak norm of collaboration is likely to be limiting in that they have little opportunity to work with others. Since collaboration is an exception rather than the norm in such organizations, employees who value collaboration may have to restrain themselves to avoid violating the generally accepted way of work. In contrast, working in an organization with a strong norm of collaboration should lead such employees to develop strong commitment as the organization is viewed as a legitimate context for them to engage in purposeful collaborations. Collaboration and teamwork demand coordination, interpersonal skills such as effective communication, and conflict resolution (Neuman and Wright 1999). These can be challenging and be experienced as strain when they exceed employees' desired level. In support, Barczak and Wilemon (2003) observed that conflict among team members often resulted in negative feelings about the project, frustration, and stress. These feelings, in turn, often affected individual members' attitudes, such as morale and commitment to the project. They also observed that teamwork can be stressful for individual members when there is finger pointing and individuals had to undertake tasks that were beyond their areas of expertise. Individuals may also experience stress when other members did not "pull their weight". This suggests that collaboration and teamwork can be a source of strain for employees (Barczak and Wilemon 2003), especially for those who have less preference for collaboration and team work. Since employees compelled to practice the norm of collaboration can experience strain and stress, we hypothesize that PE

fit in collaborative norm has an n-shaped effect on affective commitment:

H2: Employees' affective commitment is higher when there is PE fit in the norm of collaboration than when there is PE misfit.

Innovativeness refers to the extent to which organization members are expected to be creative, emphasizes learning, be open to conflicting views, and engages in experimentation and risk taking (Brock et al. 2005; Kankanhalli et al. 2005). Employees working in organizations with less innovativeness than they desire are likely to feel that their creativity and learning are suppressed. There has been some evidence that a fit in actual and preferred innovativeness is related to affective commitment. For example, O'Reilly III et al. (1991) found that person-culture fit (whose measures include innovativeness and propensity to take risk) is significantly related to value-based commitment (measured in terms of affective commitment). Westerman and Cyr (2004) also found that value congruence (whose measures include innovativeness) significantly influence organizational commitment (measured in terms of affective commitment). However, since innovative work often requires complex problem solving and involves high uncertainty, strong innovativeness quickly turns into a demand when it exceeds employees' desired level. In line with this, a review of innovativeness and employee wellbeing has concluded that innovativeness can have negative effects such as increasing employees' workload and contributing to the development of burnout (Huhtala and Parzefall 2007).

H3: Affective commitment is higher when there is PE fit in innovativeness than when there is PE misfit.

Effect of Complementary PE Fit

The effects of complementary fit on affective commitment has been explained by Warr's (1994) Vitamin Model. The model proposes that job demands related to skill variety, task identity, and job autonomy have negative effects on employees' affective wellbeing, including affective commitment, in a way that is analogous to the effects that some vitamins have on physical health. In general, deficiency in vitamins is detrimental and vitamin intake can initially improve health. However, an overdose of vitamins may lead to toxic concentration which causes a decline in health. Likewise, the absence of job demands impairs employees' affective wellbeing and their presence has a beneficial effect initially. Beyond a certain required level, further

increase in job demands is harmful and impairs affective wellbeing. This is similar to the n-shaped effect described in the PE fit framework. The n-shaped effect of job demands can be explained by the activation theory, which states that mental arousal is necessary for effective functioning and a certain level of activation is needed to motivate work behavior and performance (Scott 1966). Employees seek activation through different types of stimulation, including variation, complexity, and novelty. When there is an absence of activation, they may experience boredom, a lack of alertness, and dulling of the senses. However, too much stimulation that goes beyond the upper limit of activation can generate emotional stress (Xie and Johns 1995). In support, in a study of 1,686 employees, Warr (1994) found that skill variety, task identity, and job autonomy had n-shaped effects on their affective wellbeing.

When *skill variety* exceeds employees' desired level, they are likely to experience mental overload and job pressure (Chen and Chiu 2009; Xie and Johns 1995). Such mental strain should decrease affective commitment. When *task identity* exceeds employees' desired level, they are likely to experience stress as they are more accountable for the results of their work than they would like (Lin and Hsieh 2002). When *job autonomy* exceeds employees' desired level, their work tend to be more unstructured and they need to make many decisions regarding how their work is carried out. Research on empowerment suggests that this may result in feelings of high uncertainty (Menon 1995) and causes stress (Honold 1997). Prior studies offer some support for these effects. For example, Xie and Johns (1995) found that employees who perceived a misfit between job demands and their abilities (measured in terms of all three job characteristics) consistently experienced higher stress than those who perceived better fit. Also, Shaw and Gupta (2004) found that depression is more severe when there is a misfit in job complexity (measured in terms of skill variety). These suggest that the affective commitment of employees experiencing complementary misfit is likely to be limited. Hence, we hypothesize that:

H4: Affective commitment is higher when there is PE fit in skill variety than when there is PE misfit.

H5: Affective commitment is higher when there is PE fit in task identity than when there is PE misfit.

H6: Affective commitment is higher when there is PE fit in job autonomy than when there is PE misfit.

Relative Effect of Supplementary Fit and Complementary Fit

The PE fit literature suggests that supplementary fit is likely to have a stronger effect on affective organizational commitment than complementary fit. Supplementary fit focuses on value congruence (in terms of the norm of collaboration and innovativeness in this study), while complementary fit focuses on needs-supplies fit (in terms of psychological need for meaningfulness experienced due to skill variety, task identify, and job autonomy in this study). PE fit researchers argue that organization-related factors should be more closely associated with organizational attitudes than job-related factors and value congruence should therefore be more strongly related to affective organizational commitment (Kristof-Brown et al. 2005). More specifically, values and norms are generally shared and upheld by members in an organization (e.g., whether employees are keen to collaborate with one another), whereas job meaningfulness varies across jobs and employees. Therefore, value congruence should have a stronger effect on affective commitment towards an organization. In support, Guan et al. (2011) observed that the effect of supplementary fit ($b=0.51$) on affective commitment was significantly stronger than that of complementary fit ($b=0.27$). A meta-analysis study also observed that supplementary fit's correlation with organizational commitment was higher than that with needs-supplies fit (Kristof-Brown et al. 2005). This study is the first to examine their relative effect in the context of knowledge sharing.

H7: The effect of supplementary fit on affective commitment is stronger than that of complementary fit.

4 Research Method

Data for testing the proposed model were collected through a survey. This section describes the survey instrument, data collection procedure, and the final sample's demography.

4.1 Survey Instrument

We adopted measurement scales validated in prior studies as much as appropriate (see Table 3). Items measuring the *norm of collaboration* were adapted from Kankanhalli et al. (2005). We

added an item based on the description of cooperative organizational culture by Chatman and Barsade (1995) to capture the norm of rewarding employees for joint accomplishments. *Innovativeness* was assessed with items adapted from the scale of pro-sharing norms developed by Kankanhalli et al. (2005). We developed additional items based on the conceptual description of innovative organizations by Hurley and Hult (1998) to measure the extent to which an organization values creativity, facilitate learning, and is willing to take risks to experiment with new ideas.

Skill variety, task identity, and job autonomy were measured with scales validated by Morris and Venkatesh (2010), which were adapted from Hackman and Oldham’s (1975) job diagnostic survey to improve reliability and validity. To ensure that the items read neutral, we eliminated adjectives whenever appropriate (e.g., “considerable” in “considerable opportunity for independence” when measuring job autonomy).

Affective commitment was assessed with items adapted from the scale of affective organizational commitment validated by Rhoades et al. (2001). Items measuring *employees’ online knowledge sharing behavior* were adapted from the scale of knowledge sharing behavior validated by Hsu et al. (2007) and the scale of knowledge repository usage validated by Kankanhalli et al. (2005).

Table 3. Survey Instrument
<p>Supplementary Fit – Norm of Collaboration (NC)*: NC1: The norm of collaboration in my organization is at a level that is...* (adapted from Kankanhalli et al. 2005) NC2: The norm of teamwork in my organization is at a level that is... (adapted from Kankanhalli et al. 2005) NC3: The norm of rewarding employees for joint accomplishments is at a level that is... (developed based on Chatman and Barsade 1995)</p>
<p>Supplementary Fit –Innovativeness (IN): The extent to which my organization... IN1: values creativity is... (developed based on Hurley and Hult 1998) IN2: facilitates learning is... (developed based on Hurley and Hult 1998) IN3: is open to conflicting views is... (adapted from Kankanhalli et al. 2005) IN4: is willing to take risks to experiment with new ideas is... (developed based on Hurley and Hult 1998)</p>

Table 3. Survey Instrument (Continued)
<p>Complementary Fit –Skill Variety (SV; all items adapted from Morris and Venkatesh 2010): The extent to which my job...</p> <p>SV1: requires skill variety (i.e., required to do many different things at work, using a variety of skills and talents) is...</p> <p>SV2: requires the use of a number of complex or high-level skills is...</p> <p>SV3: is complex and non-repetitive is...</p>
<p>Complementary Fit – Task Identity (TI; all items adapted from Morris and Venkatesh 2010): The extent to which my job...</p> <p>TI1: involves completion of a whole and identifiable piece of work (that has an obvious beginning and end rather than only a small part of the overall piece of work) is...</p> <p>TI2: provides chances to completely finish the pieces of work I begin is...</p> <p>TI3: involves job arrangements that allow me to do an entire piece of work from beginning to end is...</p>
<p>Complementary Fit – Job Autonomy (JA; all items adapted from Morris and Venkatesh 2010): The extent to which my job...</p> <p>JA1: has job autonomy (i.e., able to decide on how to go about doing the work) is...</p> <p>JA2: offers independence and freedom in doing the work is...</p> <p>JA3: provides chances to use my personal initiative and judgment in carrying out the work is...</p>
<p>Affective Commitment (AF; adapted from Rhoades et al. 2001)[#]: To what extent...</p> <p>AF1: would you be happy to work in your organization until you retire?</p> <p>AF2: do you feel that the problems faced by your organization are also your problems?</p> <p>AF3: do you feel a sense of belonging to your organization?</p> <p>AF4: do you feel personally attached to your organization?</p> <p>AF5: does working at your organization have personal meaning to you?</p> <p>AF6: are you proud to tell others that you work at your organization?</p>
<p>Online Knowledge sharing Behavior (KS; adapted from Hsu et al. 2007 and Kankanhalli et al. 2005)</p> <p>KS1: How often do you share work-related knowledge online in your organization? [<i>Scale anchors: Never- Sometimes-Always</i>]</p> <p>KS2: How much time do you spend sharing work-related knowledge online in your organization? [<i>Scale anchors: None – Some – Very much</i>]</p> <p>KS3: To what extent do you involve yourself in online discussions of various topics rather than specific topics in your organization? [<i>Scale anchors: None – Some topics – Many topics</i>]</p>
<p>* All items were measured with seven-point Likert scale anchored by “less than what I desire” – “just what I desire” – “more than what I desire”</p> <p>[#]All items were measured with seven-point Likert scale anchored by “not at all” – “moderate” – “to a very great extent”</p>

All items were measured on seven-point Likert scales. To measure PE misfit, we anchor the scales with labels such as “less than what I desire”, “just what I desire”, and “more than what I desire”. It is important to note that this study measures PE fit (and misfit) based on respondents’ subjective perception. This design is guided by the rationale that perception is the means by which individuals attribute psychological meaning to their environment. An objective situation is unlikely to influence one’s attitudes and behaviors if it does not exist in one’s perception of reality (Kristof-Brown 1996). The design also allows respondents to apply their own weighting scheme to various complementary-fit-related and supplementary-fit-related factors. This permits individual differences in importance or salience of various factors to be captured in the data collected.

4.2 Data Collection

The target population of this study is employees working in organizations that have implemented KM systems to facilitate online knowledge sharing, especially employees involved in knowledge-intensive professional work. Therefore, we used the sampling frame of members of professional associations in Singapore, such as the Institution of Engineers in Singapore, the Law Society of Singapore, and Singapore Medical Association. From these associations’ listing of members, we randomly selected 900 professionals working as engineers, lawyers, and doctors and contacted them by mail.

The invitation mail explained the purpose of the study, described examples of online knowledge sharing, and appealed to those working in organizations with KM systems for knowledge sharing to participate in an online survey through the website address provided. As incentives for participation, respondents could opt to receive a summary of findings by email and enter a lucky draw for a smartphone.

We received a total of 218 complete responses and the response rate was 27.3 percent. Most of the respondents were employed as lawyers (55.5 percent; see Table 4), followed by engineers (30.3 percent) and doctors (14.2 percent). Most respondents had been with their organization for 2 to 4 years (43.1 percent). The sample comprised of 62.4 percent male and 37.6 percent female respondents. Of them, 35.8 percent attained a doctoral degree and the

remaining had a bachelor's (42.2 percent) or master's degree (22 percent). The median age of the respondents was between 30 to 39 years old. The effects of age, gender, education, occupation, and organization tenure were controlled for in data analysis.

Table 4. Sample Demography					
Characteristic	Value	Percentage	Characteristic	Value	Percentage
<i>Age</i>			<i>Occupation</i>		
20-29	23	10.6%	Doctor	31	14.2%
30-39	85	39.0%	Engineer	66	30.3%
40-49	73	33.5%	Lawyer	121	55.5%
>=50	37	17.0%	<i>Organization Tenure</i>		
<i>Gender</i>			0-1	38	17.4%
Female	82	37.6%	2-4	94	43.1%
Male	136	62.4%	5-9	60	27.5%
<i>Education</i>			>=10	26	11.9%
Doctoral degree	78	35.8%			
Master	48	22.0%			
Bachelor	92	42.2%			

5 Data Analysis

To test the hypothesized n-shaped effects, data were analyzed using polynomial regression. Prior to regression analysis, we assessed reliability, convergent validity, discriminant validity, and common method bias.

5.1 Assessment of Reliability and Validity

Reliability was assessed by examining item loadings. We observed that all loadings were above the recommended value of 0.70. Construct reliability was estimated using Cronbach's alpha coefficient and composite reliability measure. All constructs had scores above the threshold of 0.70 (see Table 5). Convergent validity was assessed by examining average variance extracted (AVE) by each construct (see Table 6). All AVEs were above 0.50 and therefore satisfactory. The discriminant validity of a construct was assessed by examining whether its AVE is larger than the squared correlations with other constructs. We found that all constructs had adequate discriminant validity. Overall, all measures had adequate reliability and validity.

Construct	Cronbach's Alpha	Composite Reliability	Average Variance Extracted	Mean	Standard Deviation
Skill variety (SV)	0.84	0.90	0.75	3.32	1.22
Task identity (TI)	0.81	0.88	0.71	2.88	0.99
Job autonomy (JA)	0.87	0.92	0.79	3.46	1.32
Norm of collaboration (NC)	0.82	0.90	0.74	3.45	1.17
Innovativeness (IN)	0.87	0.91	0.72	3.69	1.18
Affective commitment (AC)	0.89	0.92	0.66	3.48	1.14
Knowledge sharing (KS)	0.78	0.87	0.69	4.03	1.23

Construct	SV	TI	JA	NC	IN	AC	KS
Skill variety (SV)	0.87						
Task identity (TI)	0.42	0.84					
Job autonomy (JA)	0.41	0.38	0.89				
Norm of collaboration (NC)	0.18	0.30	0.26	0.86			
Innovativeness (IN)	0.39	0.37	0.34	0.38	0.85		
Affective commitment (AC)	0.37	0.39	0.45	0.34	0.66	0.81	
Knowledge sharing (KS)	0.48	0.28	0.46	0.38	0.46	0.51	0.83

* Bold values are square root of AVEs

We assessed the extent of common method bias with Harman's one-factor test by entering all constructs into an unrotated principal components factor analysis. The threat of common method bias is high if a single factor accounts for more than 50 percent of the variance. We found that the largest factor explained only 20 percent of the variance and common method bias was therefore unlikely.

We also assessed the extent of multicollinearity by calculating variance inflation factor (VIF). The resultant values of VIF ranged from 1.33 to 2.72, which were below the threshold value of 3.33 (Diamantopoulos and Winklhofer 2001). In general, the survey instrument had satisfactory reliability and validity.

5.2 Test of Hypotheses

The hypothesized n-shaped effects of supplementary fit and complementary fit were assessed with hierarchical polynomial regression, while the mediating effect of affective commitment were tested using linear regression and the Sobel test. Results of hypothesis testing are shown in Table 7. We found that PE fit in the norm of collaboration and PE fit in innovativeness were significantly related to affective commitment and the relationships were curvilinear as hypothesized (see Figure 3). PE fit in skill variety also influenced affective commitment as hypothesized. Contrary to our hypotheses, the n-shaped effects of PE fit in task identity and job autonomy were not significant. The results showed that job autonomy had a significant linear effect instead. With regard to the mediating effects of affective commitment, Sobel tests of mediation showed that PE fit in norm of collaboration and innovativeness, as well as PE fit in skill variety were significantly mediated by affective commitment. None of the control variables had significant effect.

Plots of the significant non-linear effects show that affective commitment was higher for employees perceiving PE fit in the norm of collaboration, innovativeness, and skill variety than for employees who perceived a misfit, which can be either a shortfall (left half of Figure 3) or excess (right half of Figure 3) in the environment. Interestingly, the plot for PE fit in innovativeness showed that affective commitment was highest when innovativeness slightly exceeded employees' desired level.

We found that while the effect of innovativeness (supplementary fit; $b=-0.16$) was stronger than skill variety (complementary fit; $b=-0.15$), the effect of norm of collaboration (supplementary fit; $b=-0.11$) was weaker. Therefore, the hypothesis that supplementary fit has a stronger effect than complementary fit was only partially supported. The implications of these findings are discussed next.

Table 7. Results of Hypothesis Testing							
<i>Linear regression</i>							
Relationship	Relationship	P-Value		R ²		Result	
AF → KS	0.50***	<0.001		0.25		Linear effect is significant	
<i>Polynomial regression (dependent variable: affective commitment)</i>							
Relationship	Step 1 R ² =<0.001		Step 2 R ² =0.50		Step 3 R ² =0.61		Result
	Beta	P-value	Beta	P-value	Beta	P-value	
Age	-0.01	0.889	-0.04	0.511	-0.10	0.098	Control variables are not significant
Education	-0.04	0.620	0.01	0.861	0.02	0.698	
Gender	0.12	0.169	0.05	0.451	0.01	0.806	
Occupation	-0.08	0.279	-0.03	0.586	-0.03	0.542	
Organization tenure	0.10	0.336	0.07	0.326	0.03	0.672	
Norm of collaboration (NC)			-0.03	0.486	0.01	0.930	
Innovativeness (IN)			0.46***	<0.001	0.13	0.203	
Skill variety (SV)			-0.11	0.546	-0.08	0.412	
Task identity (TI)			0.33	0.073	0.11	0.235	
Job autonomy (JA)			0.32***	<0.001	0.30	0.001	
NC ²					-0.11***	0.001	H2 is supported
IN ²					-0.16***	<0.001	H3 is supported
SV ²					-0.15***	<0.001	H4 is supported; H7 is partially supported
TI ²					0.07	0.128	H5 is not supported
JA ²					0.03	0.377	H6 is not supported
NC * IN					-0.09	0.084	(Control effects)
NC * SV					0.05	0.187	
NC * TI					0.06	0.305	
NC * JA					-0.04	0.395	
IN * SV					-0.02	0.737	
IN * TI					-0.03	0.691	
IN * JA					0.04	0.488	
SV * TI					0.02	0.797	
SV * JA					0.08	0.163	
TI * JA					-0.03	0.487	

Table 7. Results of Hypothesis Testing (Continued)			
<i>Sobel test for the mediating effects of affective commitment</i>			
Construct	Sobel	P-value	Result
NC ²	-3.37	<0.001	H1 is supported
IN ²	-3.62	<0.001	
SV ²	-3.37	<0.001	

Significant at *p<0.05; **p<0.01, ***p<0.001

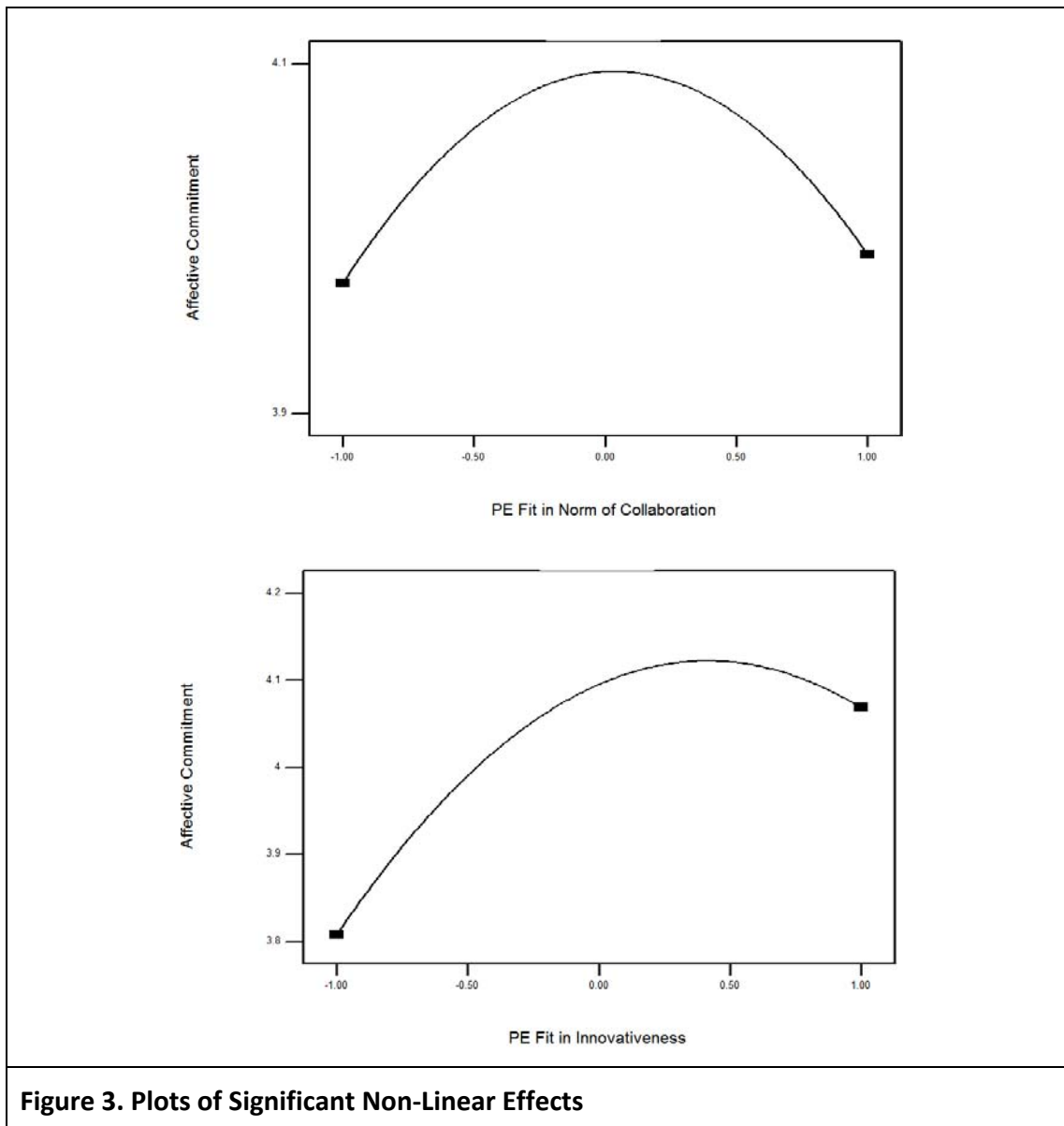
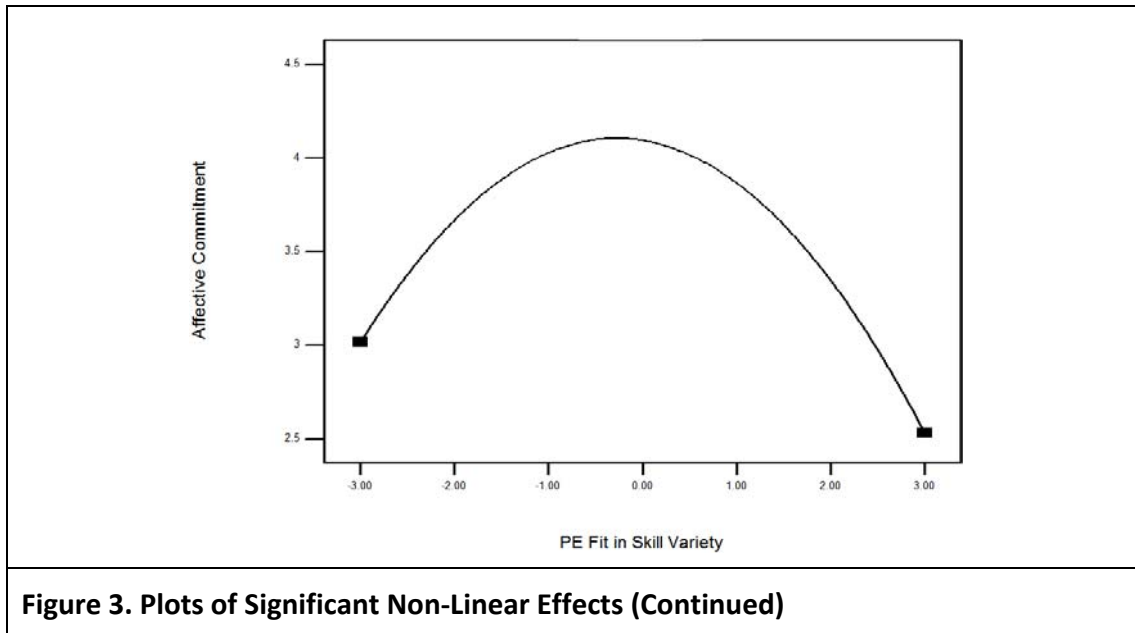


Figure 3. Plots of Significant Non-Linear Effects



6 Discussion

We found that PE fit task identity did not have any significant effect. This somewhat contradicts the finding of a prior study that task identity has a significant n-shaped curvilinear effect on organizational (rather than solely affective) commitment (Lin and Hsieh 2002). To better understand the effect of task identity, it may be necessary to consider moderators. For instance, effort-reward fairness has been shown to moderate the curvilinear effect of job characteristics such that those who perceive reward unfairness feel less satisfied to intermediate levels of job characteristics because the unfairness distracts them from the positive qualities of their job (Janssen 2001).

Job autonomy had a significant linear effect rather than the hypothesized n-shaped effect. This suggests that having more job autonomy than that desired does not lead to a decline in affective commitment. Some research on job design suggests that job autonomy is a job resource rather than a demand (Bakker and Demerouti 2007). Job resources help to achieve work goals and deal with job demands, while job demands exhaust employees' mental and physical resources. Job autonomy may be a resource in that it provides the decision latitude for organizing work to address job demands. Therefore, excess does not have a significant negative effect. The implications of these and other findings for research and practice are discussed next.

6.1 Implications for Research and Theoretical Development

This study contributes to research on knowledge sharing in several ways. First, the proposed model extends our theoretical understanding of environmental factors and individual factors by looking beyond their independent effects and revealing that person-environment fit matters in employees' knowledge sharing. It avoids the assumption that the employee-side and organization-side effects are separate and is more in line with the reality where one's behavior results from the interplay between individual characteristics and the environment. This study recognizes that an environment may not influence all individuals within it the same way and explains why employees working in the same organizational environment have different knowledge sharing behaviors. We found empirical evidence that PE fit significantly influences employees' knowledge sharing behavior. This supports KM researchers' general belief that PE fit can affect employees' KM behavior (Argote et al. 2003; Cabrera and Cabrera 2005; Edvardsson 2008).

The findings also offer a plausible explanation for some inconsistent findings in prior research, such as those related to the effect of norm of collaboration. Our findings indicate that norm of collaboration has a negative effect when it falls short of or exceeds what employees value. This suggests that the inconsistency may be due to the omission of the effect of fit between employees and their environment.

Third, the model distinguishes between supplementary fit and complementary fit and found some evidence that supplementary fit has a more significant effect. This adds conceptual richness to the notion of PE fit in KM research.

Fourth, our proposed model also contributes by explaining how PE fit influences knowledge sharing through affective commitment. The mediating role of affective commitment was identified based on both PE fit research and KM research and was supported by our empirical study. As a key antecedent of knowledge sharing (Lin 2007; Matzler et al. 2011), modeling affective commitment and its mediating effect in our proposed model clarifies why PE fit is relevant and significant to consider in KM research.

Fifth, we have conceptualized PE fit in terms of factors that are relevant and have been found to be significant in knowledge sharing (e.g., norm of collaboration, innovativeness, skill

variety). This, along with the validated survey instrument, provides a stepping stone for further studies on the effect of PE fit in KM.

Finally, this study suggests a new direction of research that focuses on PE fit. More research on this topic should deepen our understanding of the effect of person-related factors and environment-related factors, and complements existing research that has focused on identifying factors significantly influencing knowledge sharing. For example, it may be interesting for further studies to develop fit profiles that can be used by organizations to determine the best way for promoting knowledge sharing.

6.2 Limitations and Suggestions for Further Research

This study has several limitations that may present opportunities for future research. First, as one of the initial studies assessing the significance of PE fit, we had focused on factors that are commonly studied in KM research when conceptualizing supplementary fit and complementary fit. Since the findings indicate that PE fit is significant, further studies can expand the model by exploring other factors capturing values and employees' need, such as those related to managerial style and reward structure. Second, we had focused on examining the mediating effect of affective commitment. Further studies can consider other possible mediating factors, such as job satisfaction, to examine whether there are multiple mechanisms through which PE fit influences knowledge sharing. Third, data for this study were collected from individuals working in knowledge-intensive professions (i.e., lawyers, engineers, and doctors) who might have higher tolerance for PE misfit. Thus, more studies of other professions are needed to ascertain whether the findings (especially the insignificant effect of PE misfit in task identity) are generalizable. It may also be interesting to identify factors influencing employees' tolerance for PE misfit.

6.3 Implications for Practice

For practitioners, the findings indicate the potential of promoting knowledge sharing more proactively by considering supplementary fit in the recruitment process. Organizations may design their recruitment process to attract individuals who have similar values, especially the norm of collaboration and innovativeness. The assessment may be done using personality tests

or value profiles during job interviews. Site visits and meetings with current employees may also be organized to provide candidates with a preview of the organizations' values (Kristof-Brown 1996). These are likely to increase the chances of hiring employees who will be more active in sharing knowledge.

Knowledge sharing may also be increased by addressing the job-related needs of employees, especially the psychological need for meaningfulness (i.e., enhance complementary fit). Specifically, the skill variety of a job can be fine-tuned by redefining job scope such that less people complete a unit of work.

7 Conclusion

This study shows that environmental and individual factors are not independent and PE fit affects employees' knowledge sharing. Identifying the effect of PE fit enhances our theoretical understanding of the factors and clarifies why employees within the same organization can have different levels of knowledge sharing, despite managers' attempt to create an environment that is conducive for knowledge sharing for all employees. Understanding PE fit can help managers choose among alternatives for promoting knowledge sharing and avoid pursuing fads that have limited effectiveness due to the lack of fit. In an era when the most knowledge-intensive and innovative organizations attract talents with their unique cultural values and norms (CNN Money 2009), fit matters.

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