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Investigating the effects of psychological empowerment and interpersonal conflicts on employees' knowledge sharing intentions

Wei-Tsong Wang, Yi-Shun Wang and Wan-Ting Chang

Abstract

Purpose – The purpose of this paper is to investigate how different forms of interpersonal conflicts and employees' psychological empowerment may affect knowledge sharing intentions directly or indirectly via interpersonal trust in the workplace.

Design/methodology/approach – Survey data collected from 249 employees of 37 of the top 500 corporations in the manufacturing industry in Taiwan were used for the data analysis. The research model was analyzed using the component-based structural equation modeling technique, namely, the partial least squares (PLS) approach.

Findings – The results indicate that both relationship and task conflicts have significant indirect effects on employees' knowledge sharing intentions via psychological empowerment and trust. Additionally, psychological empowerment significantly influences employees' knowledge sharing intentions both directly and indirectly via trust.

Research limitations/implications – The primary theoretical implication is an advancement in the understanding of the critical antecedents of and their different effects on employees' knowledge sharing intentions from the perspectives of conflict management and individual psychological empowerment. Future research may concentrate on investigating the bidirectional interactions among trust, relationship conflicts and task conflicts in different knowledge-sharing contexts.

Practical implications – This study provides practical insights into conflict resolution intended to facilitate psychological empowerment and interpersonal trust that encourage knowledge sharing in the workplace.

Originality/value – To the best of the authors' knowledge, this study is the first knowledge sharing study that empirically examines how task and relationship conflicts affect employees' knowledge sharing intentions differently via the mediation of their perceived psychological empowerment and interpersonal trust in one another in the workplace.

Keywords Psychological empowerment, Task conflict, Knowledge sharing, Trust, Relationship conflict

Paper type Research paper

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1. Introduction

In today's knowledge-driven business environment, the development and management of critical knowledge have become both critical and challenging tasks by which managers acquire sustainable competitive advantages for their organizations. One way to accomplish this is by encouraging employees in different units to actively share knowledge with one another, thus enabling them to develop a varied range of skills and competences (Renzi, 2008). However, in practice, it is difficult to facilitate effective interpersonal knowledge-sharing activities among employees, due to a variety of human and organizational/

environmental factors, including concerns related to interpersonal relationships, self-interests and organizational incentives (Yang and Wu, 2008). Therefore, many researchers have investigated the human and organizational factors that influence employees' intention to share knowledge with one another in various organizational contexts (Bock *et al.*, 2005; Bock *et al.*, 2006; He and Wei, 2009; Kankanhalli *et al.*, 2011; Kankanhalli *et al.*, 2005; Lin and Huang, 2010; Ouellet, 2015).

While prior studies have identified various human and organizational factors that are critical for facilitating knowledge sharing behaviors in individuals, including various forms of trust, self-efficacy, perceived value of knowledge and tangible and intangible rewards (Chang and Chuang, 2011; Chiu *et al.*, 2006; Hsu *et al.*, 2007; Kankanhalli *et al.*, 2005; Wang and Haggerty, 2009), there have been very few studies that specifically investigate this issue from the perspective of conflicts among individuals (Liang *et al.*, 2007). Different forms of conflicts among individuals in a group or organization can lead to different ways in which the related individuals share and use knowledge, which may, in turn, lead to different performance-related outcomes (Jehn, 1997). Additionally, although trust and conflict are considered inherent issues of knowledge sharing in any social setting, studies that have simultaneously investigated the relationship between these two factors and their effects on individuals' knowledge-sharing behaviors are absent, with one exception (Panteli and Sockalingam, 2005). Although a few recent works have emphasized the significance of considering these two factors to gain an understanding of knowledge sharing issues, they either take conflicts as implicit consequences of trust and/or knowledge sharing (Huang, 2009; Rechberg and Syed, 2013), or take trust as an implicit and unexamined consequence of interpersonal conflicts (Kakar, 2018).

Furthermore, psychological empowerment at the individual level has gradually become critical in terms of investigating the effectiveness of technology-enabled and/or social mechanisms intended to facilitate the provision, sharing and distribution of information, power and knowledge in organizations (Amichai-Hamburger, 2008; Psoinos *et al.*, 2000). Psychological empowerment at the individual level is considered one of the facilitators of increased interpersonal trust and an enhanced tendency to repeat the empowered behavior (Fuller *et al.*, 2009). However, while a number of studies have investigated the effect of empowering leadership on individual employees' knowledge sharing behavior (Barachini, 2009; Field, 1997; Srivastave *et al.*, 2006; Xue *et al.*, 2011), little research attention has been devoted to examining how interpersonal conflicts affect knowledge sharing behavior via psychological empowerment related to such behavior. Although Coakes *et al.* (2008) implied that empowerment is associated with knowledge sharing because it enables efficient decision-making practices, which is one of the important organizational drivers that affects the ways companies organize their work, such as knowledge management. Nevertheless, these authors did not empirically examine the effect of psychological empowerment on knowledge sharing intention or behavior in the workplace. Additionally, there are two notable studies (Kang *et al.*, 2017; Ozbebek and Toplu, 2011) that specifically investigated and validated the relationship between psychological empowerment and knowledge-sharing-related behaviors in the workplace. However, these studies did not consider other contextual factors that may interact with psychological empowerment, such as different forms of interpersonal conflicts and trust, which are investigated in this study.

Overall, the discussion presented above indicates that the interactions among trust, interpersonal conflicts and psychological empowerment, and the effects of these factors on the knowledge sharing behavior of individuals is a topic that is critical but has not yet been intensively researched. The empowerment theory offers a comprehensive theoretical basis for investigating this topic because it describes how organizations can construct a supportive environment that encourages active engagement in individuals in terms of productive interactions and activities leading to achieving various work-related objectives,

such as knowledge sharing initiatives (Conger and Kanungo, 1988; Zimmerman, 1995; Zimmerman, 2000). Additionally, prior research implies that a decrease in the number of conflicts that occur between two parties may result in an increase in a greater degree of mutual trust and lead to more intensive knowledge sharing behaviors, while the overemphasis of position statuses/authority (i.e. low-level psychological empowerment) may decrease interpersonal trust and inhibit such behavior (Cheng *et al.*, 2008; Riege, 2005). To address this issue further, there are two primary purposes of this study. The first purpose is to investigate how different forms of interpersonal conflicts may affect employees' knowledge sharing intentions directly or indirectly via the mediation of interpersonal trust and psychological empowerment. The other purpose is to examine how psychological empowerment may influence the degree of interpersonal trust among employees and, in turn, directly and/or indirectly affect their intentions to share knowledge with others in the workplace.

2. Theoretical background

2.1 Interpersonal conflicts

The discussion of the relationship between interpersonal conflicts and human behaviors has a long of history in both social psychology and management. Pondy (1967) argues that conflict can be understood more appropriately if it is considered a dynamic process that underlies a variety of behaviors, and he claims that a conflict relationship between two parties can be analyzed through a sequence of inter-related episodes. These include the antecedent condition (e.g. policy differences or resource scarcity), affective state (e.g. stress, tension and anxiety), cognitive state (i.e. individuals' perceptions or awareness of conflict situations) and conflict behavior (ranging from passive resistance to overt aggression). Although conflicts among parties are usually treated as disruptive, deviant and unproductive activities, they can be beneficial to the parties by balancing power relationships among these parties, promoting flexibility and adaptiveness and facilitating effective decision-making by challenging complacency and illusions of invincibility (Putnam, 1994).

Barki and Hartwick (2001) indicate that interpersonal conflict is reflected by three key dimensional indicators: disagreement (divergence of values, needs, interests, opinions, goals or objectives that exists among individuals), interference (one or more of the individuals interferes with or opposes the other's attainment of his or her interests, objectives or goals) and negative emotion (feelings, such as jealousy, anger, anxiety or frustration, that emerge when there are disagreements and/or interferences among a group of individuals). These authors also argue that the definition of interpersonal conflict should incorporate all of its key dimensional indicators. In this study, we define interpersonal conflict as a phenomenon that occurs between two individuals when they encounter negative emotions caused by perceived disagreements and interference with the attainment of their interests, values and goals (Barki and Hartwick, 2001).

Researchers tend to understand and investigate interpersonal conflicts in terms of their various forms to address a fundamental question related to whether different types of conflicts cause different degrees of consensus or disagreement and, thus, different consequences or behavioral patterns. The answers to these questions will enable a meaningful comparison of different social contexts in which conflicts occur (Guetzkow and Gyr, 1954). Consequently, there are many typologies of interpersonal conflicts in the literature. Based on those typologies as summarized in Table I, we found that although different terms and perspectives are used to categorize conflicts, they can be generally grouped into two primary types of conflicts, task and relationship conflicts (Jehn, 1995; Jehn and Bendersky, 2003). To be specific, we consider substantive and cognitive conflicts analogous to task conflicts because all of them are derived from gaps in perception/understanding among individuals regarding achieving specific work-related purposes.

Table I Summary of the typologies of conflicts

Reference	Types of conflicts	Definition
Guetzkow and Gyr (1954)	Substantive conflict	Conflicts that are rooted in the substance of the tasks being undertaken
	Affective conflict	Conflicts that derive from the emotional, affective aspects of the interpersonal relations
Priem and Price (1991)	Cognitive conflict	Task-related conflicts that involve degrees of disagreement regarding the interpretation of a common stimulus
	Social conflict	Emotional-driven conflicts that involve interpersonal competition for payoffs or personal disagreement
Amason and Schweiger (1994)	Cognitive conflict	Task-oriented conflicts that arise from individuals' different task-related judgments
	Affective conflict	Individually oriented conflicts that derive from differences in personal traits, values and norms
Jehn (1995); Jehn and Bendersky (2003)	Task conflict	Conflicts that derive from disagreements among individuals regarding viewpoints, ideas and opinions about the content of the tasks being performed
	Relationship conflict	Conflicts that derive from interpersonal incompatibilities that typically includes tension, animosity and annoyance among individuals

Additionally, affective and social conflicts are conceptualized as being similar to relationship conflicts because all of them originate from emotional-based impetus/stimulus that may have a significant influence on interpersonal relationships among individuals in both their personal and professional lives.

Jehn (1995) indicates that task conflicts occur when there are incongruences between individuals' perceptions about the content of their work, such as perspectives, strategies and opinions, and those of their colleagues, while relationships conflicts exist when certain interpersonal incompatibilities, which may cause uncomfortable feelings and dejection among conflicting parties, are present. Additionally, although task conflicts may involve emotional elements, including animated discussions and personal excitement, they are different from relationship conflicts because they do not include intense negative interpersonal emotions that tend to be present in relationships conflicts (Jehn and Mannix, 2001). Because task conflicts are essentially different from relationship conflicts, it is thus important to understand how they may influence the entities of interest differently in various contexts (Jehn, 1997; Massey and Dawes, 2007). In this study, we thus adopt this typology of conflicts to examine the influences of different types of conflicts on employees' knowledge sharing intentions.

The associations of task and relationship conflicts with psychological empowerment have been highlighted in the literature. For example, Tjosvold *et al.* (2003) indicate that effective management of task-related conflicts encourages members of a team to collectively reflect upon and adjust their team objectives, tactics or processes, which thus enables these team members to feel empowered because they are offered more opportunities to collect feedback that may help them to develop meaning in their work. Chen *et al.* (2011) also emphasize the significance of investigating how relationship conflicts, as one of the key stressors of members of teams, may negatively influence the members' psychological empowerment by demotivating such members, which, in turn, discourages members' efforts and engagement in their works and their teams. In a similar vein, Natland and Hansen (2017) indicate that the emergence and resolution of task and relationship conflicts involve an intensive, complicated interplay of empowerment and other components of group interactions and propose that conflicts should thus be interpreted in the context of empowerment to understand how they may affect the empowerment process.

2.2 Empowerment theory

The empowerment theory provides researchers with a framework by which to understand the processes and consequences of individual efforts to pursue control and exert influence over the decisions that shape their lives (Zimmerman, 2000). From the perspective of person-environment interaction, empowerment can be viewed as a set of processes and actions that enable and encourage employees to become more involved in the decisions and actions that affect their jobs in the workplace (Psoinos *et al.*, 2000). Empowering employees in organizations is thus essentially about superiors and coworkers sharing the following four things with their subordinates: information about organizational performance; rewards based on the organizational performance; knowledge that enables employees to understand and contribute to organizational performance; and the power to make decisions that affect organizational direction and performance (Bowen and Lawler, 1992).

Empowerment may occur and be analyzed at multiple levels, and affect different people in different contexts (Amichai-Hamburger, 2008). At the individual level, empowerment is constantly referred to as a construct of psychological empowerment, which generally refers to the ability of an individual to interact with the world to gain power or acquire resources to attain achievements. Psychological empowerment operates via three primary components: intrapersonal, interactional and behavioral (Speer, 2000; Zimmerman, 1995). The intrapersonal component is related to how individuals think of themselves in terms of the exercise of control, motivation to control and perceived self-efficacy in a specific context. The interactional component refers to how individuals comprehend their surrounding social environment and relate to the environment and can help characterize an individual ability to establish a critical understanding of the forces that shape the surrounding social environment and the methods used to acquire the resources necessary to enact changes. The behavioral component refers to the actions that individuals' take to produce desired social changes.

Prior research refers to psychological empowerment as a multifaceted motivational factor that represents individuals' intrinsic motivation to engage in specific behavior and can be manifested in terms of four cognitive aspects: meaning, competence (i.e. self-efficacy), self-determination and impact, all of which reflect individual orientations toward social/work roles (Spreitzer, 1995; Thomas and Velthouse, 1990). Meaning refers to the perceived value of a work-related objective based on an individual's own standards. Competence indicates belief in one's own ability to engage in certain behaviors. Self-determination reflects the degree to which individuals sense that their particular action/behavior is autonomously motivated and initiated. Impact refers to the degree to which individuals believe that their particular action/behavior can influence entities in the real world, such as contributing to corporate strategies, administrative procedures or operating outcomes at work. Thomas and Velthouse (1990) indicate that identification of the key dimensions of psychological empowerment provides researchers with a comprehensive framework that can be used to evaluate the potential effects of empowerment interventions from an intrinsic motivation perspective, which makes possible the development of plausible, reliable explanations of the success or failure of certain focal management decisions or techniques.

A multifaceted view of psychological empowerment has been applied to knowledge-sharing studies. For example, a number of studies have implied that a sense of a high level of empowerment can lead to the satisfaction of psychological needs that can intrinsically motivate people to engage in altruistic behaviors, such as knowledge sharing (Chan *et al.*, 2008; Gagne, 2009). Additionally, the processes that occur during the formation of psychological empowerment involve a critical understanding of the socio-political or sociotechnical environment, which requires a balance between empowerment and control mechanisms to acquire the benefits of individual knowledge (Coakes *et al.*, 2008; Duane and Finnegan, 2003). In addition, the works of Kang *et al.* (2017) and Ozbebek and Toplu (2011), by treating psychological empowerment as an analog of active motivational

orientation that is operationalized as a second-order latent constructs measured by the four dimensions proposed by Spreitzer (1995), specifically examine the relationship between individual psychological empowerment and knowledge-sharing-related behavior in the workplace by conceptualizing psychological empowerment as an active intrinsic motivation that can significantly shape an individual's orientation regarding knowledge sharing behavior. The discussion above highlights the significance of applying psychological empowerment theory to the investigation of knowledge sharing behavior.

In this study, psychological empowerment is viewed as a motivational construct because it contributes to creating and strengthening motivation related to accomplishing tasks by enhancing personal efficacy (Conger and Kanungo, 1988; Goh and Wasko, 2012; Moya and Henkin, 2006; Taylor, 2004). Therefore, psychological empowerment is defined as the degree to which an employee perceives his or her organization's effectiveness in terms of enhancing employees' feelings of competence and autonomy regarding their work (Conger and Kanungo, 1988; Fuller *et al.*, 2009). The true nature of empowerment goes beyond the traditional view of the delegation of power to employees and includes enabling staff to make and implement their own decisions by increasing their motivation related to task accomplishment via fostering their sense of self-efficacy and autonomy (i.e. self-determination) (Spreitzer, 1995; Xue *et al.*, 2011).

Self-efficacy, as one of the key components of psychological empowerment, refers to an individual's own evaluation of his or her ability to perform the courses of action that are required to achieve specific purposes (Bandura, 1986). Self-efficacy is a prerequisite of all kinds of human behaviors because it reflects individuals' perceptions of the ability to overcome the obstacles faced when engaging in a particular behavior (Ryan *et al.*, 2011; Wang, 2016). People who have a high level of self-efficacy regarding engaging in a particular behavior tend to be persistent when there are challenges related to organizing and performing the focal behavior (Hsu *et al.*, 2007). Additionally, a sense of autonomy, or self-determination, refers to the degree to which an individual experiences acting with a sense of volition and has the opportunities to choose to engage in a specific behavior (Gagne and Deci, 2005). Individuals sense a high level of autonomy regarding performing a specific behavior when they perceive self-determination in selecting their objectives freely based on self-interest, curiosity, care or abiding values (Wang, 2016). When individuals believe that they are in control (i.e. sense of autonomy) regarding a particular behavior, they are more likely to be consistently and strongly motivated internally (i.e. from within themselves) to perform the focal behavior (Cockrell and Stone, 2010). In summary, psychological empowerment is associated with individuals' understanding of the critical cultural traits of their surrounding socio-political context, including support for autonomy and building competence, a sense of accountability, a degree of interpersonal trust and the fit between personal and group/organizational values and goals (Srivastave *et al.*, 2006). Hence, psychological empowerment is a key to unlocking other performance enablers, including those related to knowledge sharing (Coakes *et al.*, 2008).

Additionally, research indicates that most efforts at theorizing empowerment involve a conflict perspective at their roots because in an empowered environment, people value self-efficacy, self-confidence and collaboration over conflict and competition (Conger and Kanungo, 1988; Jentofts, 2005). Consequently, conflict can be viewed as a social and environmental barrier that may impact empowerment and its behavioral consequences (Fawcett *et al.*, 1995). Additionally, Price (1990) emphasizes the importance of acknowledging the existence of conflicts in studies of the empowerment theory to better understand the issues of who should be empowered and how. Some studies also indicate the idea that how organizations handle conflict management issues may help distinguish empowered organizations from less empowered ones (Riger, 1984; Zimmerman, 2000).

Moreover, trust has been consistently considered a critical issue in the process of empowerment because it plays an important role in creating a supportive environment/

atmosphere that enables individuals' empowering experiences to invoke the focal human behaviors (Appelbaum *et al.*, 2004; Huang, 2012; Midha, 2012; Ouschan *et al.*, 2006). For example, employees in an organization are less likely to internalize the systems, operational protocols, or policies of the organization if they do not consider themselves to be personally or professionally empowered. Empowerment is the key to understanding the trust relationships within an organization (Moya and Henkin, 2006). Prior studies also indicate that when employees are empowered in the work environment, they tend to respond by trusting their superiors more in various work-related contexts (Cheung *et al.*, 2012; Ergeneli *et al.*, 2007). In line with this argument, Huang (2012) further notes that employees who feel empowered by others in an organization tend to reciprocate by exhibiting an attitude of trust in those others in return, which may result in more proactive feedback-seeking behavior (e.g. knowledge sharing behavior). Jiang *et al.* (2016) also imply that the psychological empowerment of individuals in a group encourages active personal engagement in group activities, which can lead to enhanced interpersonal trust within the group and, in turn, facilitate interpersonal knowledge sharing. The discussion above indicates the significant value of the empowerment theory in terms of understanding the formation of interpersonal trust in the workplace, which is the key to facilitating interpersonal interactions in organizations.

The discussion above presented the associations among psychological empowerment, interpersonal conflicts and trust in the current study based primarily on the empowerment theory. However, there have been few studies that have specifically investigated the relationships among trust, interpersonal conflicts, psychological empowerment and knowledge sharing intentions or behavior at the individual level. Additionally, there is a lack of empirical evidence of the influences of interpersonal conflicts and individual psychological empowerment on their knowledge sharing intentions or behaviors in the workplace. The results of this study will thus be insightful in terms of advancing our understanding of how organizations can establish a supportive environment intended to successfully implement knowledge-sharing initiatives by empowering employees and increasing their interpersonal relationships with one another via appropriate conflict resolution practices.

2.3 Trust

Trust generally refers to an individual's faith that other individuals will behave benevolently toward others and be consistent with expectations. Cockrell and Stone (2010) indicate that a strong knowledge sharing culture is characterized by a high level of trust. In other words, in a specific social context, individuals are more willing to share their knowledge with others if a high level of interpersonal trust is present because such trust encourages the individuals to freely interact with one another without hesitation, regardless of the underlying motives for engaging in such behavior (Chang and Chuang, 2011; Chiu *et al.*, 2006; Duan *et al.*, 2017; Staples and Webster, 2008; Wang and Haggerty, 2009).

Trust is frequently discussed based on conceptual categories and characteristics/dimensions (Gefen, 2002; Gefen and Straub, 2004; Mayer *et al.*, 1995; McKnight and Chervany, 2002). Regarding the conceptual categorization of trust, McKnight and Chervany (2002) propose a typology of trust that includes four primary constructs: disposition of trust, institution-based trust, trusting beliefs and trusting intentions. These authors argue that disposition to trust is about trust in general others, institutional trust is about trust in the situation or structures, while trusting beliefs and intentions (i.e. interpersonal trust) are about trust in specific others. It is thus appropriate to determine whether dispositional, institutional-based and interpersonal trust constructs are different from one another primarily because of the differences in their propensity. As specified in the works of McKnight and Chervany (2002) and Lewicki *et al.* (1998), disposition to trust is cross-situational and cross-personal because it reflects the extent to which one has a general propensity to depend on most

people across most situations. Institutional-based trust is situation-specific but cross-personal because it indicates that one trusts a specific situation regardless of the specific people involved in this situation, and trusting beliefs and intentions are person-specific but cross-situational because they indicate that one trusts specific individuals across various situations.

In this study, trust is used and measured in the sense of trusting beliefs, which embraces the idea that trust, as a product of the interactions between two parties, can determine the behavior of these parties, and may be independent of situational factors, in that one party's trust in the other party may be sustained across various contexts (McKnight and Chervany, 2002). With reference to the definitions of trusting belief developed by Nicolaou and McKnight (2006) in the context of intra- or inter-organizational information exchange and by Lin and Huang (2010) in the context of knowledge exchange in project teams, trust is defined as the degree to which an employee believes that his or her colleagues have beneficial characteristics in terms of their integrity, benevolence and ability, and thus the degree to which those colleagues will act in his or her best interest. Trusting beliefs has been recognized by social psychology researchers as a specific psychological state that includes both affective and cognitive components (McKnight and Chervany, 2002), and such beliefs may be constructed and maintained even when there exists merely inclusive or insufficient evidence for supporting their construction (Rempel *et al.*, 1985). Additionally, the findings of Benamati *et al.* (2010) and Nicolaou and McKnight (2006) indicate that an individual's trusting beliefs in another individual tend to be a leap of faith that can provide a sense of confidence in the other individual's behavior, even when the outcomes of the behavior are unpredictable. Based on the discussion above, we believe that it is appropriate to measure and operationalize the construct of trust as trusting beliefs in this study.

Based on the dynamics of the process of interpersonal interactions used for knowledge sharing, three key trust dimensions that are adopted in this study that are typically adopted by researchers to understand this construct (Benamati *et al.*, 2010; Bhattacharjee, 2002; Flavian *et al.*, 2006; Komiak and Benbasat, 2006; Lu *et al.*, 2016; Mayer *et al.*, 1995; Nicolaou and McKnight, 2006). These trust dimensions are ability (the trustee is believed to have the competence to accomplish what the trustor wants done), integrity (the trustee is believed to act honestly and faithfully by complying with a set of principles that the trustor considers acceptable) and benevolence (the trustee is believed to want to behave by considering the trustor's best interests aside from any egocentric incentives).

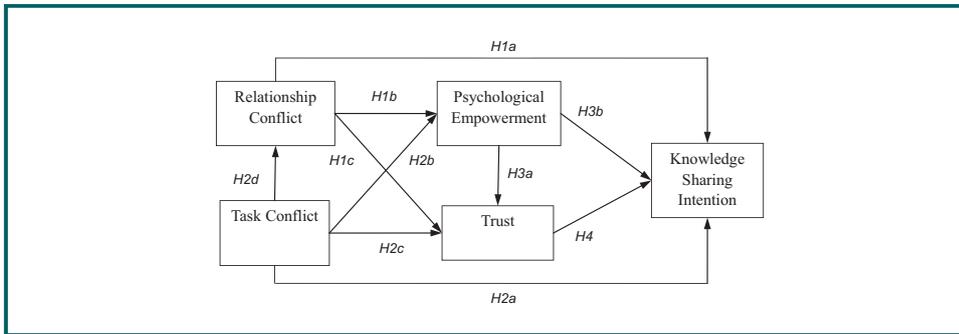
The significance of considering trust as a multidimensional construct is emphasized in existing studies. For example, Gefen (2002) argues that while trust is related to a trustee's willingness to be vulnerable to the actions of a trustor, different dimensions of trust are associated with different types of trustee vulnerability and thus may affect the trustee's behavioral intentions differently in various contexts. Additionally, some researchers argue that, in the context of a social group/community, both integrity and benevolence can eventually contribute to the same behavior, which is facilitating frequent conversations among group/community members to achieve a shared aim, and their effects should thus be taken into consideration simultaneously (Lu *et al.*, 2010; Ridings *et al.*, 2002).

3. Research model and hypotheses

3.1 The research model

Based on the discussion of empowerment theory presented above, in our research model (Figure 1) relationship and task conflicts are considered to be the outcomes of the social interactions among employees that may affect employee performance (Jehn, 1995; Putnam, 1994), while psychological empowerment is considered to be employee-generated outcome-based appraisals/beliefs related to employee goals for achieving self-efficacy and

Figure 1 The research model



self-determination/control (Brockman and Morgan, 2003; Vatanasombut *et al.*, 2008; Xue *et al.*, 2011). Additionally, the construct of trust in others in the workplace is considered a representation of attitude, as suggested in previous studies (Johnson and Grayson, 2005; Jones, 1996; Rempel *et al.*, 1985; Whitener *et al.*, 1998), that mediates the effects of psychological empowerment, relationship conflicts and task conflicts on employees' behavioral intentions, namely, knowledge sharing intention. We do not intend to examine employees' actual knowledge sharing behavior because research indicates multiple barriers to knowledge sharing behavior, regardless of the presence of a high level of intention to share knowledge, which may be beyond the scope of a single study (Bock *et al.*, 2005). These barriers include natural barriers caused by time and space as well as structural barriers, such as authority, status hierarchies and functional boundaries, as Bock *et al.* specify in their work. Focusing on actual knowledge sharing behavior may not allow us to understand how the interactions among interpersonal conflicts, trust and psychological empowerment affect the development of employees' psychological processes regarding knowledge sharing behavior, which is the primary purpose of the current study. We thus use knowledge sharing intention as our final dependent variable in this study to comprehend how interpersonal conflicts, trust and psychological empowerment contribute to or compromise a tendency toward knowledge sharing in organizations.

Additionally, we included our survey respondents' companies, positions (managerial or non-managerial) and years of services in their individual companies as control variables for the latent construct of knowledge sharing intentions to take into consideration the potential effects of the differences in the individual companies' cultures/policies regarding employee interpersonal knowledge sharing. The development of the research hypotheses associated with the proposed research model is discussed in the following sections.

3.2 Interpersonal conflicts, psychological empowerment, trust and knowledge sharing intentions

Relationship conflicts are ubiquitous in human society and shape human relations regarding sharing knowledge (Østerlund and Carlile, 2005). Relationship conflicts among individuals in a group tend to be accompanied by greater tension, animosity, and annoyance within the group, and thus can hinder them from sharing knowledge with others because such conflicts may diminish the commitment that the individuals have toward each other (Amason and Sapienza, 1997; Jehn, 1995; Shih *et al.*, 2008). Additionally, from a cooperation perspective, when dysfunctional, emotionally oriented conflicts are poorly managed, people may remain distant, skeptical and angry, which may lead to weakened interpersonal relationships, and such individuals are thus less likely to devote effort toward sharing knowledge with others (Panteli and Sockalingam, 2005). Moreover, relationship conflicts involve personal sentiments, such as dislike among group members, and negative feelings

about the others, such as annoyance and frustration, and are thus likely to prevent such individuals from sharing knowledge with one another for the purpose of engaging in collaborative problem-solving (Huang, 2009). Based on the discussion above, the following hypothesis is developed:

H1a. Relationship conflict negatively influences employees' knowledge sharing intentions.

Relationship conflicts are detrimental to the work-related efforts of individuals because they tend to focus more on reducing threats and achieving cohesion than on doing the real work they supposed to be doing (Jehn, 1997). This can make individuals feel less empowered regarding their actual work. Additionally, relationship conflicts among same-status employees can increase the fear of aggression from others, and thus they may become more reluctant to be empowered to make decisions that are relevant to the tasks of others (Field, 1997). Moreover, from the perspective of social interpersonal relations, psychological empowerment involves collective actions, individuals' awareness of the environmental factors influencing their lives in a social group, and their ability to define problems/opportunities and to affect the social conditions in the group (Zimmerman and Rappaport, 1988). It is thus reasonable to infer that relationship conflicts in a group can lower the level of psychological empowerment because such conflicts may reduce the ability of individuals to control and exert influence on key issues in the group. Based on this, the following hypothesis is developed:

H1b. Relationship conflict negatively influences employees' psychological empowerment related to knowledge sharing.

Research indicates that relationship/affective conflicts can produce suspicion and hostility that may diminish individuals' trust in the integrity and benevolence of others in a group (Amason and Sapienza, 1997; Panteli and Sockalingam, 2005). Simons and Peterson (2000) imply that relationship conflicts may cause individuals to perceive the behaviors of others to be malicious in intent, and thus convey distrust through their personal conduct, while others may then reciprocate with distrust of their own. Cheng *et al.* (2008) indicate that the enforcement of coercive-based power in a group represents a power struggle that may increase relationship conflicts, and, in turn, result in a decreased level of interpersonal trust regarding the integrity and benevolence of others in the group. Jehn *et al.* (2010) also argue that relationship conflicts within a group may result in individuals' perceptions of an unfavorable atmosphere, which can contribute to an increased level of distrust (e.g. the suspicion that others have malicious intentions).

Trust is a form of power that represents a generalized capacity to commit resources to achieve certain goals, while relationship conflicts can result in the loss of this capacity and thus lead to a low level of trust in the conflicting parties' capability related to performing specific tasks (Young and Wilkinson, 1989). Additionally, relationship conflicts among individuals in different social groups can shatter their trust in the abilities of such individuals, due to greater pessimism about the possibility of effective cooperation (Delhey and Newton, 2003). Moreover, relationship conflict involves negative emotions, where individuals tend to perceive people they dislike as being less likely to be helpful, and thus have less trust in their abilities (Langfred, 2007). Based on the discussion above, the following hypothesis is developed:

H1c. Relationship conflict negatively influences employees' trust in others in the workplace.

As a result of incompatible ideas regarding task-related conflicts, individuals' curiosity and dedication to search for more information and knowledge to resolve the uncertainties they face may be reduced (Tjosvold and Deemer, 1980). Some other prior studies have indicated that moderate task conflicts in a group increase the perceived necessity to better understand the thoughts of the others through sharing knowledge and information, thus

enhancing the quality of group decision-making (de Dreu and Weingart, 2003; Shih *et al.*, 2008; Simons and Peterson, 2000). Additionally, it has been found that when conflicts of opinions and ideas (i.e. task conflicts) occur in a group in an otherwise harmonious atmosphere, individuals tend to engage in more intensive sharing of knowledge and information to reconcile their individual differences regarding the task, and they are thus likely to benefit from these constructive exchanges (Zahra *et al.*, 2007).

From a learning perspective, task/cognitive conflicts encourage individuals to pursue a deeper understanding of task-related issues to engage in more careful consideration of alternatives, thus promoting knowledge sharing to integrate the knowledge obtained from different sources (Mitchell *et al.*, 2008). Additionally, task conflicts can increase curiosity, which serves as an important intrinsic personal motivation for collaboration, such as knowledge sharing behavior taking place during collaborative learning (Wu *et al.*, 2014). Furthermore, task conflicts can positively influence employees' knowledge sharing intention by enhancing their perceptions regarding the value, security and availability of the critical resources needed for the assigned work (Chen *et al.*, 2011). Finally, task conflicts, as a result of variations in individuals' assumptions about tasks, can help create a condition for learning, thus facilitating knowledge sharing processes (Hsu *et al.*, 2008; Huang, 2009; Rosendall and Bijlsma-Frankema, 2015; Young *et al.*, 2012). Based on the discussion above, the following hypothesis is developed:

H2a. Task conflict positively influences employees' knowledge sharing intentions.

Task-related conflicts can facilitate effective interpersonal communication processes, and thus individuals feel more empowered because they can actively participate in work-related discussion and decision-making (Short *et al.*, 1994). In a similar vein, when interpersonal conflicts are task-focused in a group, the group uses its members' capabilities and prior knowledge better (as a result of productive and constructive communications processes), which, in turn, leads to better work performance that can make individual members feel more empowered regarding their work (Jehn, 1997). Additionally, task conflicts facilitate the reconciliation of opposite/distinct task-related viewpoints among employees, which may lead to a synthesis of diverse perspectives and increased availability of critical informational resources and, in turn, increase the employees' perceptions of their levels of self-determination and self-efficacy regarding performing the assigned tasks (Chen *et al.*, 2011). Finally, task-related conflicts (e.g. incongruent expectations regarding job responsibilities) can lead employees to perceive their jobs to be more challenging and stressful, and they are thus more likely to empower themselves to actively take initiatives/responsibilities in their work roles so that they perform well enough to ensure job security (Ackfeldt and Malhotra, 2013). Based on the above discussion, the following hypothesis is presented:

H2b. Task conflict positively influences employees' psychological empowerment related to knowledge sharing.

Research indicates that when task-related conflicts increase among different parties, the level of divisiveness among those parties increases correspondingly, and individuals in the same interest group then tend to distrust people in other groups in terms of their integrity and benevolence (Beierle and Konisky, 2000). For example, resolution of task conflicts enables individuals to develop social bonds related to mutual norms and shared perspectives on dealing with uncertainty, which consequently promote interpersonal integrity-based trust (Ring and van de Ven, 1994). Additionally, when task conflicts are present, conflicting parties may attribute the responsibilities for these conflicts to the less trustworthy behavioral tendencies of others, such as behavioral inconsistency, lack of concern or unevenness of communication, all of which pose threats to building trust in others' integrity and benevolence (Korsgaard and Brodt, 2002).

Task conflicts are likely to produce high-quality strategic decisions and may facilitate the development of the trust necessary to effectively implement them (i.e. trust in others' abilities) (Amason and Sapienza, 1997). Additionally, task conflicts can stimulate constructive discussions among individuals and thus improve decision-making quality and work performance, which, in turn, may lead to an increase in the level of individuals' trust in other parties' intentions and abilities to complete the tasks they have been assigned (Jehn, 1997; Jehn and Shah, 1997; Lau and Cobb, 2010). Furthermore, task-related conflicts may enable and facilitate constructive interpersonal task-related communications that consequently promote individuals' perceptions of the equitable allocation of responsibilities and resources and thus provide the foundation for developing trust in others' abilities (Panteli and Sockalingam, 2005). The findings of some prior studies also imply that task conflicts among individuals promote open and frank communication for seeking consensus about their work, which will lead to increased trust in others' abilities in the long run if certain forms of consensus are reached (Behfar *et al.*, 2008; DeChurch and Marks, 2001). Finally, task conflicts may encourage disputing parties to engage in communication and coordination processes leading to conflict resolution and promoting positive attributions of each other's behavior, which facilitate the development of competence-based trust between the parties (Malhotra and Lumineau, 2011). Based on the discussion above, the following hypothesis is developed:

H2c. Task conflict positively influences employees' trust in others in the workplace.

Prior research indicates that on many occasions, task conflicts may be interpreted as maliciously motivated efforts of one entity to expand his or her influence on some issues at the expense of other entities, and thus may contribute to the development of relationship conflicts (Friedman *et al.*, 2000). During the process of exchanging ideas and opinions intended to resolve task conflicts, individuals may negatively infer others' intentions because of biased information processing, and this can produce a self-fulfilling prophecy, thus triggering relationship conflicts (Peterson and Behfar, 2003). Additionally, while task conflicts can be productive on some occasions, particularly in situations in which solutions to problems are identified and disputes are resolved smoothly, they can get out of control and become emotionally driven, leading to direct confrontations and negative feelings (Leonidou *et al.*, 2008). For example, task conflicts may be perceived by individuals as personal attacks under some circumstances (e.g. a social context in which significant role ambiguity is present), and thus fuel the formation of relationship conflicts (Tidd *et al.*, 2004). Finally, task conflicts involve cognitive disagreement among individuals that may trigger personality confrontation and thus lead to relationship conflicts (Olson *et al.*, 2007; Simons and Peterson, 2000). Therefore, the following hypothesis is presented:

H2d. Employees' task conflicts positively influence their relationship conflicts.

3.3 Psychological empowerment, trust and knowledge sharing intentions

Psychological empowerment is considered to have a positive effect on trust because a lack of trust arises from individuals' sense of lacking control over their situations (i.e. they feel less empowered) in a specific context (Midha, 2012). Additionally, when employees feel more empowered by management, they are likely to develop a high level of organizational identification, in terms of accepting organizational values and goals as their own (Erturk, 2010). Consequently, the employees' trust in the members of the organization tends to be high under such circumstances. Moreover, based on the norm of reciprocity, when employees feel empowered by their supervisors, they tend to reciprocate by developing an attitude comprising both cognitive-based (e.g. ability) and affect-based (e.g. integrity, concern and care) trust in those supervisors (Barton and Barton, 2011).

Superiors can acquire their subordinates' trust in their integrity and competence by genuinely empowering them because the subordinates may see such empowering actions

as indicators of their trustworthiness in the minds of their superiors, and the subordinates may thus develop the same trust in the superiors (Joseph and Winston, 2005). Additionally, empowering stakeholders (e.g. investors) to participate in organizational decision-making processes can induce the stakeholders' trust in the ability of the organization's managers to generate profits in return for their investments (Kanagaretnam *et al.*, 2012). In an electronic commerce context, consumer perceived levels of empowerment related to handling personal information is negatively associated with the level of risks of doing business with online vendors and may thus enable consumers to trust the online vendors' ability to execute, monitor, and control the procedures, rules and protocols for achieving successful transactions (van Dyke *et al.*, 2007).

It has been found that the positive effects of empowerment on trust in ability and competence is consistent with the findings linking trust to open communication and information sharing, supportive leadership practices and increased employee involvement in decisions (Appelbaum *et al.*, 2004). Additionally, when managers engage in empowering behavior, such as sharing and delegating of control to their subordinates, as a means of social reward, the subordinates' trust in managers' behavioral integrity and benevolence is likely to increase (Huang, 2012; Whitener *et al.*, 1998). In a similar vein, from a reciprocation perspective, empowering behaviors on the part of supervisors is likely to be considered a sign of trust in the subordinates who are thus empowered, and these subordinates may then reciprocate these feelings by developing trust in their supervisors' behavioral consistency, integrity and concern/care (Moya and Henkin, 2006). Finally, the loss of empowerment of an organization's stakeholders can result in the stakeholders seeing a greater level of opacity (e.g. incomplete information) in the organizational operations, and this can have a significant negative effect on the stakeholders' trust in the integrity and benevolence of the organization's managers (Kanagaretnam *et al.*, 2014).

Based on the above discussion, the following hypotheses are developed:

H3a. Employees' psychological empowerment regarding knowledge sharing positively influences employees' trust in others in the workplace.

An increased degree of empowerment means that additional knowledge and information is distributed from superiors to their subordinates, so that they have adequate resources to participate more in making decisions related to their work (Bowen and Lawler, 1992). Additionally, empowerment is a cornerstone for innovation because it is one of the critical cognitive motivators of individuals to engage in autonomous knowledge sharing behaviors (Barachini, 2009). Furthermore, knowledge sharing is a critical aspect of empowerment in the workplace, in that empowered employees must possess adequate information to justify their job-related decisions and thus are more likely to share knowledge with one another to ensure that those decisions are reasonable (Xue *et al.*, 2011). In a similar vein, some studies have indicated that empowered employees tend to be encouraged to solve problems together and to sense that their contributions of information and ideas are more likely to receive fair recognition from their superiors. They are thus more motivated to share their knowledge with others (Field, 1997; Srivastava *et al.*, 2006). Moreover, a couple of studies have found that individuals' perceived psychological empowerment can encourage their knowledge sharing behavior because empowered individuals tend to develop self-confidence in the positive impact of their actions and are thus likely to engage in behavior that can make a difference from their perspective (Kang *et al.*, 2017). Finally, employees will perceive that they have more freedom and opportunities to question existing organizational practices/processes and to explore and share new ideas and approaches if they are empowered (Wong, 2005). Based on the discussion above, the following hypothesis is developed:

H3b. Employees' psychological empowerment related to knowledge sharing positively influences their knowledge sharing intentions.

3.4 Trust and knowledge sharing intentions

Trust is considered as essential to enabling various kinds of behaviors involving interpersonal interactions (Konovsky and Pugh, 1994; Schurr and Ozanne, 1985). Prior studies have specified the rationale for the effects of that trust has on human behavior. For example, the presence of individuals' trust in others' integrity and benevolence can facilitate collaborative interactions that minimize the possibility of cheating, and thus promote knowledge sharing (Nonaka, 1994). Additionally, the existence of an environment of high trust in others' integrity and benevolence can promote knowledge sharing behavior, as it encourages individuals to interact freely with each other without hesitation in terms of sharing and exchanging knowledge (Chang and Chuang, 2011; Chiu *et al.*, 2006). Moreover, trust in others' integrity and benevolence, as an underlying perception of effective social exchanges, facilitates mutual affection and emotional attachment among individuals, and thus encourages people to share knowledge with one another rather than withholding it (Erat *et al.*, 2006; Lin and Huang, 2010; Staples and Webster, 2008; Wang and Haggerty, 2009).

In a group or organizational setting, individuals tend to share information and knowledge with others more freely when they trust one another's capabilities and competence (Duan *et al.*, 2017; Weick and Roberts, 1993; Xue *et al.*, 2011). Additionally, a high degree of trust in others' expertise in a specific area will increase individuals' intention to accept and share knowledge with each other (Chou and He, 2011). The following hypothesis is thus developed:

- H4. Employees' trust in others in the workplace positively influences their knowledge sharing intentions.

4. Research method

4.1 Development of instruments

To develop an effective survey, 40 items relevant to the eight constructs of the research model were adapted from the existing literature and refined based on the specific topic of this study. To determine the characteristics of the constructs of psychological empowerment and trust, the four criteria for distinguishing formative constructs from reflective constructs, as suggested by previous researchers were applied (Jarvis *et al.*, 2003; Petter *et al.*, 2007; Urbach and Ahlemann, 2010).

Adopting the multidimensional measures of psychological empowerment developed by Spreitzer (1995), which includes four sub-constructs, meaning, competence (i.e. self-efficacy), self-determination and impact, is popular in management and organizational behavior studies. However, we took a different approach to measuring this construct for the following reasons. The first is that we intend to investigate the influence of interpersonal conflicts on psychological empowerment and knowledge sharing intention, which mostly occur in collaboration-based working environments. On some occasions in collaboration-based working environments, individuals may dedicate their efforts to their work for the overall good of their teams/departments/organizations, and whether they inherently value the tasks assigned to them or not may become irrelevant to their perception regarding their working conditions. Therefore, the sub-construct of meaning proposed by Spreitzer may not be an effective component of individuals' psychological empowerment in such cases. Another reason is that we hypothesize psychological empowerment as a key antecedent of trust, which can be enhanced by individual perceptions of increased self-determination and self-efficacy in the workplace (Conger and Kanungo, 1988; Fuller *et al.*, 2009). In other words, while empowerment is essentially about removing conditions that contribute to individuals' feelings of powerlessness, it can be done by enhancing their experience of self-efficacy and self-determination, which are among the key ingredients facilitating interpersonal trust. Based on the arguments above, although we agree that individuals tend

to feel more empowered when they sense that their actions generate a more favorable impact, we are concerned that it is difficult to evaluate the tangible impact of some human behavior, such as knowledge sharing behavior, by adopting a longitudinal research design. Therefore, the inclusion of the sub-construct of impact proposed by Spreitzer may unnecessarily complicate the fundamental nature of the construct of psychological empowerment and interfere with the investigation of the effectiveness of psychological empowerment in shaping interpersonal trust and individual knowledge sharing intention taking place in this study. We eventually modeled the construct of psychological empowerment as a second-order formative construct measured by the two first-order sub-constructs: knowledge sharing self-efficacy and self-determination (Conger and Kanungo, 1988; Fuller *et al.*, 2009).

Additionally, while Fuller *et al.* originally called the sub-construct of knowledge sharing self-determination “experienced empowerment” and did not provide its clear working definition, we called this construct knowledge sharing self-determination for the following reasons: the survey items for this construct were adopted originally from the work of Ugboro and Obeng (2000), who developed the items by relying on the concept of Conger and Kanungo (1988). Conger and Kanungo argue that from a motivational perspective, acts of empowerment are associated with the removal of conditions that lead to the decrease in the level of feelings of power, which refers to an intrinsic need for self-determination. The second reason is to be consistent with the sub-construct of self-determination used to measure empowerment developed by Spreitzer (1995), who indicated that self-determination reflects individual perceived autonomy in the initiation and the continuation of focal behavior.

Based on the previous discussion, trust was modeled as a second-order formative construct measured by the three first-order sub-constructs, ability, benevolence, and integrity, as in previous studies (Benamati *et al.*, 2010; Bhattacharjee, 2002; Flavian *et al.*, 2006; Lu *et al.*, 2016; Lu *et al.*, 2010; Nicolaou and McKnight, 2006). Benamati *et al.* (2010) argue that trustworthiness (i.e. trusting beliefs) can be modeled as a second-order construct that reflects trustors’ beliefs about the ability, benevolence and integrity of a trustee, which can lead to the trustors’ positive attitudes, such as faith, confidence and assurance, toward the trustee. Items adopted for the sub-constructs of ability, benevolence and integrity are from the works of Jarvenpaa *et al.* (1998) and Lu *et al.* (2010).

All of the survey items were pilot-tested with 31 individuals who had experience of performing inter- and intra-organizational knowledge sharing behaviors. The internal consistency and reliability were examined using Cronbach’s alpha coefficient analysis. The questionnaire consisted of 34 items used to assess the nine first-order reflective constructs comprising our research model. Items included in the questionnaire were considered highly reliable because the individual Cronbach’s alpha coefficients of all the first-order constructs reached the recommended level of 0.7 (ranging from 0.90 to 0.95) (Hair *et al.*, 2010). The items in the survey were measured using a seven-point Likert scale ranging from (1) strongly disagree to (7) strongly agree. The survey items included in our official questionnaire for data collection are presented in Appendix 1. Additionally, the items that were included in the questionnaire for our pilot test but were excluded from our official questionnaire based on the results of the pilot test are presented in Appendix 2.

4.2 Data collection

To collect the data needed for this study, a list of the Top 500 corporations in the manufacturing industry in Taiwan was acquired. One reason for selecting the manufacturing industry for the current study is that various kinds of manufacturing industries, particularly metal machinery and information technology industries are among the most important economical drivers of Taiwan. Additionally, existing literature implies that corporations from the manufacturing industry in Taiwan have advantages over their global competitors in terms of their effective production and operations management capabilities that rely heavily

on intra- and inter-departmental collaboration (Chukwudozie, 2014; Kouvelis and Niederhoff, 2007). We believe that the collaborative nature of the operations of the corporations in this industry will inevitably involve issues related to empowerment and interpersonal conflicts that are associated with knowledge sharing activities among employees.

We randomly selected 100 companies from the acquired list, and representatives of these companies were contacted by phone and/or personal visits to explain the purpose of the research and to inquire whether the company would be willing to participate. Finally, 37 companies agreed to participate in this study, although the names are withheld due to a non-disclosure agreement with their executives. We asked the liaisons from these participating companies to randomly distribute the questionnaires to 10 to 12 employees of their individual companies. Participation in our survey was voluntary. We also enrolled all the participants of our survey in a lottery for the gift certificates to a chain of convenience stores to increase the response rate. Additionally, we sent a number of survey invitations by email to the selected employees to increase the response rate. Eventually, a total of 372 questionnaires were distributed, and all of them were returned. We decided to exclude 123 responses because we found that these respondents failed to complete all of the survey questions or to pass the examination of the reverse questions that were purposely included in the survey. Finally, 249 valid responses were acquired, yielding a valid return rate of 66.9 per cent.

We assessed the potential non-response bias by comparing the early respondents with later ones based on demographic variables, including gender, age, level of education and monthly income, using independent sample *t* tests. The results indicated no statistically significant differences between these two data sets (with 151 and 98 respondents, respectively) in terms of gender ($p = 0.50$), age ($p = 0.25$), or level of education ($p = 0.50$). The constructs of interest for early and late respondents were also compared using an independent samples *t* test, as suggested in the literature (Armstrong and Overton, 1977; Erturk, 2010; Lee *et al.*, 2008; Wang and Hsiao, 2014). The results indicated that there were no statistically significant differences between these two data sets in terms of relationship conflict ($p = 0.55$), task conflict ($p = 0.36$), psychological empowerment ($p = 0.98$), trust ($p = 0.53$) or knowledge sharing intention ($p = 0.13$). Based on these findings, non-response bias was not considered to be a serious concern. Moreover, because a nonrandom sampling method was used, tests of homogeneity on the department and years of services in the current companies of the respondents were performed using one-way ANOVA. These two variables for tests of homogeneity were selected because some prior studies have implied their potential association with individuals' perceptions of psychological empowerment and/or trust (Ergeneli *et al.*, 2007; Mills and Ungson, 2003; Ugwu *et al.*, 2014). The results indicated that the mean score of all the survey items were not significantly different ($p > 0.05$) among respondents across different departments (p values ranged from 0.11 to 0.97) and years of service (p values ranged from 0.13 to 0.95). A test of homogeneity on the respondents' job positions (managerial versus non-managerial) was also performed using an independent samples *t* test because individuals with different levels of job positions may have different perceptions regarding psychological empowerment and trust (Chan *et al.*, 2008; Ergeneli *et al.*, 2007; Ugwu *et al.*, 2014). The results indicated that there were no statistically significant differences (p values ranged from 0.10 to 0.87). The 249 valid survey responses were thus used as a single data set in the subsequent analysis.

4.3 Data analysis and results

Given the existence of multiple relationships between the dependent and independent variables in this type of research model, structural equation modeling (SEM), including the covariance-based SEM (CSE) and component-based SEM, namely, the partial least

squares (PLS) method, have been consistently adopted for analyzing these kind of research models. The PLS technique was used for the data analysis due to its disregard for the multivariate normality of data distribution constraint and its ability to appropriately estimate the error variances of higher-order formative constructs (Hair *et al.*, 2010; Petter *et al.*, 2007; Wetzels *et al.*, 2009), including trust and psychological empowerment, as in this study.

To begin with, as one of the constraints of CSE techniques is related to the normality of the data, the data properties regarding data distribution were assessed (Qureshi and Compeau, 2009; Wang and Hsiao, 2014). The inspection of the univariate measures of the absolute values of skewness (ranging from 0.03 to 1.46) and kurtosis (ranging from 0.08 to 3.93) for all the items were smaller than the recommended cutoff values, which were 3 and 10, respectively (Hair *et al.*, 2010). These results indicate the satisfaction of the assumption of univariate normality (Kline, 2004). However, the results of Mardia's (1970) test of multivariate kurtosis ($z = 18.59$, $p < 0.01$) for our data indicated a violation of the assumption of multivariate normality. As the PLS has relatively fewer constraints related to the distributional normality of the data as compared to the CSE, it was thus considered to be more appropriate as the analysis technique in this study (Wang and Hsiao, 2014; Wetzels *et al.*, 2009; Urbach and Ahlemann, 2010). Additionally, the CSE may suffer from identification problems associated with formative constructs, and thus be unable to obtain a solution to the research model being analyzed (Petter *et al.*, 2007). Although methods have been developed to enable researchers to avoid the identification problems associated with the evaluation of formative constructs when using the CSE technique, these are difficult to use in various situations, including those in which a formative construct is measured purely by formative indicators, has a single subsequent variable, or is the ultimate dependent variable in the research model (Jarvis *et al.*, 2003; MacKenzie *et al.*, 2005; Petter *et al.*, 2007; Qureshi and Compeau, 2009). However, the PLS can completely avoid the problem of identification for model formative nomologies (Chin, 1998; Petter *et al.*, 2007). Overall, if the violation of any of the premises of CSE (e.g. assumption of multivariate normal distribution, acceptable sample size and maximal model complexity) is inevitable in practice, PLS is an appropriate alternative for theory testing (Urbach and Ahlemann, 2010).

Finally, regarding the use of multiple measures to measure a latent construct, it is generally believed that while researchers sometimes choose to use a single indicator to measure a construct for acquiring advantages including low costs, ease of application and brevity, situations in which the use of single-item measures are preferable are very unlikely to be encountered in practice (Hair *et al.*, 2014). Although Diamantopoulos *et al.* (2012) propose a set of guidelines for justifying the use of single-item measures, avoiding single-item measures is considered a rule of thumb when designing measurement scales for latent constructs from a predictive validity perspective (Hair *et al.*, 2017; Ringle *et al.*, 2012). Nevertheless, when a two-item measurement scale exists, such as the first-order construct of knowledge sharing self-determination in this study, PLS can be a good option because it can completely avoid the problem of identification (Hair *et al.*, 2010). Details of the data analysis processes are introduced in the subsequent sections.

4.4 Evaluation of the measurement model

The reliability of the measures for each of the nine first-order constructs was first tested by examining the individual Cronbach's alpha coefficients. For the nine first-order constructs, all of these were greater than the recommended level of 0.7 (ranging from 0.71 to 0.92) (Fornell and Larcker, 1981; Hair *et al.*, 2010). Then, using the SPSS and SmartPLS 3.2 software packages, the psychometric properties (i.e. construct validity) of the measurement model were assessed in terms of convergent and discriminant validity (Fornell and Larcker, 1981; Hair *et al.*, 2010).

We assessed the convergent validity of the measurement model based on three criteria, as follows:

1. the factor loadings of the indicators, which must be statistically significant with values greater than 0.6;
2. composite reliability (CR), with values greater than 0.6; and
3. average variance extracted (AVE) estimates, with values greater than 0.5 (Fornell and Larcker, 1981; Hair *et al.*, 2010).

Four items, including TC2, INTE2 and INTE5, were discarded at this stage due to their having low factor loadings. The Cronbach's alpha coefficients of all the first-order constructs after item deletions were all greater than the recommended level of 0.7 or higher (ranging from 0.71 to 0.92). Additionally, as shown in Table II, all the factor loadings (ranging from 0.62 to 0.92) of the remaining items were statistically significant, and all were larger than the restrictive criterion of 0.6. These results indicate that each item in the measurement model was strongly related to its respective construct, and half or more of the variance of all of the indicators was explained by their respective latent constructs. Furthermore, all CR values (ranging from 0.87 to 0.93) were higher than 0.6, indicating a reliable measurement model. Finally, the AVE values ranged from 0.67 to 0.77, indicating that each construct was strongly related to its respective indicators. Overall, the measurement model exhibited adequate convergent validity.

Table II Convergent validity of the measurement model

<i>Construct</i>	<i>Indicator</i>	<i>Factor loading*</i>	<i>Composite reliability (CR)</i>	<i>Average variance extracted (AVE)</i>
Relationship conflict (RC)	RC1	0.86	0.93	0.77
	RC2	0.89		
	RC3	0.86		
	RC4	0.90		
Task conflict (TC)	TC1	0.88	0.90	0.74
	TC3	0.90		
	TC4	0.80		
Knowledge sharing self-efficacy (KSSE)	KSSE1	0.80	0.94	0.67
	KSSE2	0.85		
	KSSE3	0.86		
	KSSE4	0.86		
	KSSE5	0.77		
	KSSE6	0.80		
	KSSE7	0.79		
Knowledge sharing self-determination (KSSD)	KSSD1	0.89	0.87	0.77
	KSSD2	0.86		
Integrity (INTE)	INTE1	0.92	0.87	0.69
	INTE3	0.62		
	INTE4	0.92		
Benevolence (BENE)	BENE1	0.84	0.90	0.75
	BENE2	0.87		
	BENE3	0.88		
Ability (ABI)	ABI1	0.83	0.89	0.67
	ABI2	0.86		
	ABI3	0.76		
	ABI4	0.81		
Knowledge sharing intention (KSI)	KSI1	0.88	0.94	0.76
	KSI2	0.90		
	KSI3	0.90		
	KSI4	0.84		
	KSI5	0.83		

Note: *All factor loadings of the individual items are statistically significant ($p < 0.01$)

The discriminant validity of the measurement model was also examined based on the Fornell–Larcker criterion model (Fornell and Larcker, 1981). As shown in Table III, the squared correlations between the factors were smaller than the corresponding AVE estimates. This result indicates that the constructs were more strongly related to their respective indicators than to the other constructs in the model (Fornell and Larcker, 1981). We also checked the discriminant validity based on the heterotrait-monotrait (HTMT) ratio of correlations (Henseler *et al.*, 2015). As shown in Table IV, all the HTMT ratios of correlations were smaller than the recommended threshold value of 0.85 (Henseler *et al.*, 2015), except for that of integrity and benevolence. However, the HTMT ratio of correlations of integrity and benevolence, which was equal to 0.86, satisfied a looser criterion of being equal to or lower than the value of 0.9 recommended in Henseler *et al.*'s (2015) work. We thus determined that the discriminant validity was ensured based on this criterion. Additionally, the confidence intervals for all the HTMT ratios of correlations that are constructed by performing the bootstrapping procedures did not contain the value one, as summarized in Table V. Overall, we determined that the discriminant validity was ensured based on the HTMT criterion.

We modeled the constructs of psychological empowerment and trust as second-order formative constructs that were formed as the weighted sum of their respective first-order reflective constructs. Therefore, we examined weights using a principal component analysis (Diamantopoulos and Winklhofer, 2001; Petter *et al.*, 2007). The results of the analysis showed that the weights were all significant (Table VI). Additionally, the correlations among all the first-order reflective constructs of psychological empowerment (0.57) and trust (ranging from 0.56 to 0.74) were all smaller than the cutoff value of 0.9, indicating that substantial collinearity was not present (Hair *et al.*, 2010). Furthermore, we performed a test of the variance inflation factor (VIF) to examine whether the indicators for the constructs of psychological empowerment and trust exhibited significant

Table III Discriminant validity for the measurement model based on the Fornell–Larcker criterion

Construct	1	2	3	4	5	6	7	8
1. RC	0.77							
2. TC	0.21	0.74						
3. KSSE	0.01	0.05	0.67					
4. KSSD	0.06	0.01	0.32	0.77				
5. INTE	0.13	0.03	0.10	0.23	0.69			
6. BENE	0.11	0.01	0.13	0.17	0.54	0.75		
7. ABI	0.06	0.01	0.16	0.21	0.31	0.44	0.67	
8. KSI	0.02	0.01	0.30	0.25	0.21	0.27	0.28	0.76

Note: Diagonals represent the AVEs, and the other matrix entries represent the squared factor correlations

Table IV Discriminant validity for the measurement model based on the HTMT criterion

Construct	1	2	3	4	5	6	7	8
1. RC								
2. TC	0.51							
3. KSSE	0.11	0.29						
4. KSSD	0.30	0.07	0.70					
5. INTE	0.45	0.27	0.36	0.64				
6. BENE	0.38	0.15	0.41	0.54	0.86			
7. ABI	0.28	0.16	0.46	0.59	0.66	0.80		
8. KSI	0.14	0.12	0.59	0.61	0.52	0.60	0.61	

Note: The matrix entries represent the HTMT ratios of correlations of two latent constructs

Table V Discriminant validity for the measurement model based on the HTMT confidence intervals

<i>Constructs</i>	<i>Lower bound (2.5%)</i>	<i>Upper bound (97.5%)</i>
RC → TC	0.40	0.61
RC → KSSE	0.06	0.26
RC → KSSD	0.14	0.46
RC → INTE	0.32	0.58
RC → BENE	0.25	0.51
RC → ABI	0.17	0.42
RC → KSI	0.06	0.29
TC → KSSE	0.17	0.43
TC → KSSD	0.04	0.22
TC → INTE	0.17	0.40
TC → BENE	0.08	0.27
TC → ABI	0.10	0.26
TC → KSI	0.07	0.27
KSSE → KSSD	0.59	0.80
KSSE → INTE	0.22	0.49
KSSE → BENE	0.25	0.55
KSSE → ABI	0.31	0.59
KSSE → KSI	0.46	0.70
KSSD → INTE	0.47	0.79
KSSD → BENE	0.36	0.69
KSSD → ABI	0.43	0.73
KSSD → KSI	0.47	0.75
INTE → BENE	0.76	0.95
INTE → ABI	0.55	0.77
INTE → KSI	0.36	0.66
BENE → ABI	0.69	0.87
BENE → KSI	0.44	0.72
ABI → KSI	0.49	0.71

Table VI Weight and VIF of formative indicators

<i>Second-order construct</i>	<i>First-order construct</i>	<i>VIF</i>	<i>Standard error</i>	<i>Weight*</i>
Psychological Empowerment (PE)	Knowledge sharing self-efficacy	1.45	0.00	0.85
	Knowledge sharing self-determination	1.45	0.00	0.24
Trust (TR)	Integrity	1.90	0.02	0.34
	Benevolence	2.24	0.02	0.27
	Ability	1.75	0.02	0.51

Note: *All the weights were significant ($p < 0.001$)

multicollinearity (Hair *et al.*, 2010; Petter *et al.*, 2007; Urbach and Ahlemann, 2010). The results indicated that the VIFs for the first-order indicators of psychological empowerment and trust (Table VI) were smaller than the cutoff value of 3.3 (Diamantopoulos and Winklhofer, 2001; Petter *et al.*, 2007). It was thus determined that high multicollinearity was not an issue. Finally, the content validity of the constructs of psychological empowerment and trust was assessed. As shown in Table VI, the magnitude of the error terms of the first-order reflective constructs of psychological empowerment and trust were small, and the coefficients of those first-order reflective constructs were all significant. These results suggest that psychological empowerment and trust were well described by their respective first-order indicators (Diamantopoulos, 2006; Petter *et al.*, 2007). Table VII presents the descriptive statistics for each of the constructs in the proposed research model.

Table VII Descriptive statistics of the investigated constructs

<i>Construct</i>	<i>Mean</i>	<i>SD</i>
Relationship conflict	3.77	1.24
Task conflict	5.05	1.00
Psychological empowerment	5.40	0.69
Trust	5.40	0.67
Knowledge sharing intention	5.64	0.77

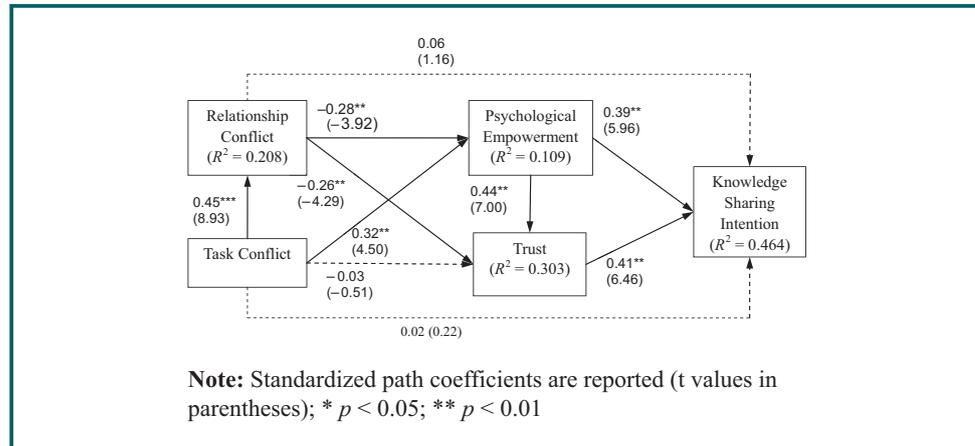
Note *A total of 31 items

To eliminate concerns related to common method bias, the survey items were organized to counterbalance the order of the measurement of the independent and dependent variables in two ways (Lin and Huang, 2010; Podsakoff *et al.*, 2003). First, items for the dependent variables followed rather than preceded the items for the independent variables. Second, the order of the items for the constructs influencing the construct of knowledge sharing intention was random in the questionnaire. A Harman's single-factor test was conducted to statistically examine the presence of common method variance (CMV) among the variables. The data from all of the survey items were loaded into an exploratory factor analysis using an unrotated factor solution to see if all the items would load on a single factor and to see whether a particular factor extracted would account for the majority of the covariance among the items. Multiple factors were obtained from this procedure, and no single factor explained the majority of the covariance among the items (the variances explained by the extracted factors ranged from 2.81 to 30.26 per cent). It was thus determined that evidence of severe common method bias was not present. Additionally, the partial correlation procedure suggested in Podsakoff *et al.*'s (2003) work was adopted by including the first factor extracted from the principal components analysis into our structural model as the common method latent factor (CMF); then, the CMF was used as a control variable for our four dependent variables (Lin and Huang, 2010). The results of a pseudo F test (Subramani, 2004) indicated that including the CMF did not result in any significant changes in the variance explained in the constructs of relationship conflict, trust, or knowledge sharing intention. However, CMF significantly increased the variance explained in perceived empowerment ($p < 0.01$). Nevertheless, the inclusion of the CMF in the research model did not cause any changes in the results of the examination of our hypotheses testing. As a result, we concluded that common method bias did not cause serious problems in this study.

4.5 Hypotheses testing using the structural model

We tested the significance of our research hypotheses using the structural model. We first assessed the fit of the structural model by evaluating the explained variance (coefficients of determination; R^2) for endogenous constructs (Wetzels *et al.*, 2009). The proposed model explained a considerable proportion of the variance in the endogenous latent constructs (ranging from 0.109 to 0.464), as depicted in Figure 2. Additionally, we examined the standardized root mean square residual (SRMR). The SRMR reflects the discrepancy between the empirical and model-implied (theoretical) correlation matrix, and is an appropriate goodness-of-fit measure for PLS because it can be used to examine the potential problem of model misspecification (Henseler *et al.*, 2014). We found the SRMR of our structural model to be 0.07, which was lower than the recommended cutoff value of 0.08 (Hu and Bentler, 1999). Thus, we considered our structural model to have exhibited an adequate fit. Finally, we checked the Stone–Geisser's Q^2 value of our four endogenous latent constructs to evaluate the predictive relevance of the proposed path model to these endogenous constructs (Urbach and Ahlemann, 2010). Based on the literature, the Q^2 values of 0.02, 0.15 and 0.35 indicate a small, medium or large predictive relevance for a

Figure 2 Hypotheses testing results



particular endogenous construct (Hair *et al.*, 2014). Our analysis showed that the Q^2 values of our four endogenous constructs, including relationship conflict, psychological empowerment, trust and knowledge sharing intention were equal to 0.16, 0.59, 0.57 and 0.75, respectively. These results indicate that our proposed path model has medium to large predictive relevance for these three endogenous constructs. Overall, the results of the examinations above indicate support for the fit of the structural model.

Consequently, bootstrapping of the 249 cases (the same as that for the original sample size) was conducted with 5,000 samples to evaluate the significance of the proposed research hypotheses. The results are presented in Figure 2. $H1a$ and $H2a$ were rejected, indicating that both relationship and task conflicts do not have a direct effect on employees' knowledge sharing intentions. Additionally, $H1b$ and $H2b$ were supported, indicating that relationship conflict has a significant negative effect on psychological empowerment, while task conflict has a significant positive effect on psychological empowerment, as expected. These findings also indicate that relationship conflict negatively influences employees' knowledge sharing intentions, and task conflict positively influences employees' knowledge sharing intentions via the mediation of psychological empowerment. Relationship and task conflicts accounted for 10.9 per cent of the variance in psychological empowerment.

Hypotheses $H1c$ and $H3a$ were both supported, while $H2c$ was rejected. These results indicate that relationship conflict has a significant negative effect on trust, and psychological empowerment has a significant positive effect on trust, as expected; however, task conflict does not have a significant effect on trust. Relationship conflict and psychological empowerment jointly accounted for 30.3 per cent of the variance in trust. Additionally, hypothesis $H2d$ was supported, indicating that task conflict is positively associated with relationship conflict and accounted for 20.8 per cent of its variance.

Finally, $H3b$ and $H4$ were both supported, indicating that psychological empowerment and trust have direct positive effects on employees' knowledge sharing intentions. All the constructs that directly and/or indirectly influence employees' knowledge sharing intentions accounted for 46.4 per cent of its variance.

With regard to the effects of the control variables, the results of the data analysis indicate that the companies ($\beta = -0.04$; $t = -0.82$), positions ($\beta = 0.01$; $t = 0.12$) and years of service ($\beta = -0.02$; $t = -0.35$) of our respondents do not have a significant influence on the construct of knowledge sharing intentions. Those findings indicate that there are no significant differences in the influence of individual companies' characteristics on employees' knowledge sharing practices.

4.6 Examination of mediational hypotheses using the Sobel test

To examine the mediational effects of psychological empowerment and trust on the relationships among two types of conflicts and knowledge sharing intention, we adopt the Sobel test using the bias-corrected (BC) bootstrapping strategy proposed by Preacher and Hayes (2004, 2008), which can be used to examine specific or multiple mediating effects simultaneously. Thus, a number of Sobel tests using the BC bootstrapping strategy were performed to examine the mediating effects of psychological empowerment and trust using the macro for the statistical software SPSS developed by Preacher and Hayes (2008), which is available on the Internet (www.afhayes.com/spss-sas-and-mplus-macros-and-code.html). We set the number of bootstrapping samples (k) to 5,000 and the desired nominal Type I error rate to five per cent in these tests. The size of a bootstrapping sample was set to be the same as the size as that of our original sample. We then calculated the lower and upper bounds of the BC 95 per cent confidence interval (CI) for k bootstrapping samples for 249 cases with replacement. If the lower and upper bounds of the indirect effect of an independent variable (INDV) on a dependent variable (DV) through a proposed mediator (M_i) does not include zero, we can determine that the distinction between the total and the direct effects of the INDV on the DV are significantly different from zero when the M_i is present, and thus the M_i is considered a significant mediator.

Table VIII summarizes the results of the examination of the mediating effects. The results indicate that both psychological empowerment and trust are significant mediators of the effects of relationship conflicts on knowledge sharing intentions. However, the results indicate that while psychological empowerment is a significant mediator of the effect of task conflicts on knowledge sharing intentions, trust is not. Additionally, we adopt Zhao *et al.*'s (2010) typology of mediation to determine the types of mediating effects of our research model, for which the results are presented in Table VIII. The term "indirect-only mediation" means that the INDV has a significant indirect effect on the DV only via the specified mediator, but has no significant direct effect on the DV. The term "no mediation" means that the INDV has neither significant indirect effect on the DV via the specified mediator nor significant a direct effect on the DV.

5. Discussion and implications

5.1 Discussion

Consistent with the findings of prior studies, the constructs of trust and psychological empowerment were found to have significant direct positive effects on knowledge sharing intentions. These findings indicated that when employees have a high level of trust in their colleagues, they tend to care about one another more, and, thus, they are more willing to put effort into sharing knowledge to benefit one another. These findings also echo the findings of prior research, which indicate that the cornerstones of a knowledge-sharing corporate culture include innovativeness, based on which individuals are allowed to query

Table VIII Results of the examination of mediating effects

Test no.	Dependent variable (INDV)	Mediator (M_i)	Independent variable (INDV)	Indirect effect of the proposed mediator	BC 95% CI lower bound	BC 95% CI upper bound	Result
1	KSI	PE	RC	-0.034	-0.073	-0.002	Indirect-only mediation
2	KSI	TR	RC	-0.094	-0.148	-0.054	Indirect-only mediation
3	KSI	PE	TC	0.057	0.020	0.110	Indirect-only mediation
4	KSI	TR	TC	-0.029	-0.078	0.012	No mediation

existing practices as well as to freely explore, generate and implement new ideas and strategies through empowerment, and collaborations, which can be easily organized if interpersonal trust is built (Wong, 2005). Empowered employees tend to consider empowerment to be a social reward from significant others, and thus, they are more likely to reciprocate by developing mutual trust, which, in turn, leads to the sharing of knowledge and information that may benefit others (Huang, 2012; Midha, 2012; Whitener *et al.*, 1998).

Inconsistent with prior studies, we found that relationship and task conflicts do not have direct significant effects on employees' knowledge sharing intentions. A plausible explanation for this discrepant finding may be related to the issue of mediating effects. Psychological empowerment was found to mediate the effects of relationship and task conflicts on employees' knowledge sharing intentions, while trust was found to mediate the effects of relationship conflicts on employees' knowledge sharing intentions. These findings imply that in a highly stressful organizational environment, empowered employees' relationship conflicts with their superiors and/or peers can prevent them from developing positive attitudes toward their organizations, in terms of their values and goals, and may thus prevent them from engaging in knowledge sharing behaviors that can benefit their organizations (Janssen, 2004). Additionally, when task conflicts occur in organizations that value the norm of autonomous management, employees are encouraged to resolve conflicts by themselves, which can enhance their sense of psychological empowerment and, in turn, facilitate collaboration to achieve outcomes that can benefit all the individuals involved the most (Gelfand *et al.*, 2014; Langfred, 2007). Furthermore, when the level of interpersonal trust is not high among employees, they are mostly motivated by rewards and punishment. In this situation, ineffective management of relationship conflicts may compromise interpersonal relationships by hindering individuals who are involved in the relationship conflicts from developing high levels of trust in others, which may, in turn, discourage them from engaging in knowledge sharing practices (Panteli and Sockalingam, 2005; Shih *et al.*, 2008). Finally, from the perspective of media richness, when employees primarily rely on asynchronous technologies (e.g. online discussion forums) for interpersonal communication, it is difficult for them to establish a climate for real-time brainstorming initiatives or resolving personal disputes that may be caused by either task or relationship conflicts, thus resulting in the insignificant effects of such conflicts on their knowledge sharing intentions.

Consistent with prior research, task conflict was found to have a significant positive association with relationship conflict. However, inconsistent with prior studies, we found that task conflict does not have a direct significant effect on employees' trust in others. A plausible explanation for these findings is related to the association between task and relationship conflicts. In an environment where task interdependence is typically high, this interdependence tends to increase and intensify the amount of interpersonal interactions, and thus increases opportunities for task conflicts to be transformed into relationship conflicts, which then negatively influence individuals' trust in the integrity and benevolence of others (Jehn, 1995; Tidd *et al.*, 2004). Additionally, if individuals experiencing task conflicts deeply believe their own judgments regarding the tasks to be correct, they are likely to perceive an increase in work-related risks resulting from disputes with others and thus are less likely to experience strengthened trust in the abilities of those who disagree with them (Langfred, 2007).

Overall, we confirmed the significance of the causal paths among relationship and task conflicts, psychological empowerment and trust in others in the workplace. The confirmation of these causal paths highlights the importance of understanding how different forms of interpersonal conflicts are associated with interpersonal trust and thus influence employees' knowledge sharing intentions in different ways. We also found that productive task conflicts among employees facilitate active communication practices that encourage them to share knowledge to satisfy the basic psychological need for self-determination (i.e. being capable

of controlling and exerting an influence on their surroundings) and self-efficacy (i.e. feeling competent) (Gagne, 2009), which are the key components of psychological empowerment (Fuller *et al.*, 2009; Vatanasombut *et al.*, 2008; Xue *et al.*, 2011), while relationship conflicts discourage the execution of such communication practices. Employees who feel empowered tend to develop a high degree of interpersonal trust in one another, and thus they are likely to repeat the empowered behavior, such as sharing knowledge (Fuller *et al.*, 2009).

5.2 Implications for research

The first implication is that this study extends prior theory and research by linking the concepts of interpersonal conflicts among employees and their perceived psychological empowerment with their effects on knowledge sharing intentions by using the empowerment theory as the theoretical foundation. Interpersonal conflicts is assumed to be a social and environmental stressor that has the potential to either positively or negatively impact employees' perceived psychological empowerment and its behavioral consequences (Fawcett *et al.*, 1995; Janssen, 2004). Our research findings show that the two types of interpersonal conflicts have different influences on psychological empowerment and, in turn, on employees' trust in others and knowledge sharing intentions. These findings indicate that linking interpersonal conflicts and psychological empowerment to explain the knowledge sharing intentions of employees may be useful in terms of a conceptualization of psychological empowerment related to knowledge sharing in organizations from a conflict management perspective. This study thus contributes to future theory development by highlighting the significance of integrating the perspectives of conflict management and individuals' psychological empowerment to develop an understanding of employees' behavioral patterns regarding knowledge sharing, which has been under addressed in the literature.

Second, from the standpoint of employees, there are a number of factors that motivate and/or discourage them with regard to performing social-exchange-related interactions with others in the workplace. We found that interpersonal conflicts, as consequences of interpersonal social interactions, play a significant role in influencing employees' knowledge sharing intentions, which is an important issue that has been addressed by only a few prior studies (Cheng *et al.*, 2008; Panteli and Sockalingam, 2005). In light of the perspective on interpersonal conflicts, future researchers may develop potential research topics related to knowledge sharing that examine, for example, how interpersonal conflicts shape employees' knowledge sharing behavior by influencing their commitment to organizational benefits and visions, how strategies for resolving interpersonal conflicts should be designed to facilitate altruistic employee knowledge sharing behavior and how the involvement of superiors in interpersonal conflicts impacts their power to control and distribute the knowledge created and possessed by employees.

Finally, this study empirically confirms that psychological empowerment and interpersonal trust are the main factors influencing employees' knowledge sharing intentions and statistically validates their mediational effects on the influences of relationship and task conflicts on employees' knowledge sharing intentions. Employees' knowledge sharing behavior in the workplace tends to be dependent on a diverse range of interpersonal relationships that may be characterized by both interpersonal conflicts and trust. Thus, our research findings offer support to the significance of future theory development efforts that involve conceptualizing the critical roles that psychological empowerment and trust play in facilitating knowledge sharing in an organizational setting that are associated with dynamic interpersonal relationships that give rise to different forms of conflicts. For example, the mediational effects validated in this study may lead to propositions that are related to the mediational effects of psychological empowerment and interpersonal trust on the effects of other conflict-related antecedents, such as the divergence of values, job-related frustration

or role conflict (Ackfeldt and Malhotra, 2013; Barki and Hartwick, 2001), on knowledge sharing intentions or behavior in the workplace.

5.3 Implications for practice

Because diverse and contradictory interpersonal interactions, such as collaboration and competition, among employees are common in today's organizations, employees tend to perform work-related actions in a way that makes them feel safe and comfortable. Therefore, to facilitate knowledge sharing behaviors among employees in the workplace, a condition under which a knowledge contributor feels that the knowledge receivers will not use the knowledge they receive to engage in actions that may negatively influence the knowledge contributor's personal interests, either purposely (e.g. the intentional execution of malicious actions) or unintentionally (e.g. due to a lack of ability to appropriately use the knowledge acquired), would be favorable. Consequently, managers should develop mechanisms that can facilitate positive human interactions, including mentoring systems, job rotations and regular intra- and inter-departmental conferences to achieve collective perceptions regarding organizational values and goals. Such mechanisms should include well-defined processes that facilitate collaboration rather than competition, which can thus reduce the probability of the occurrence of relationship conflicts and encourage the occurrence of productive task conflicts via the collaborative efforts of employees. This can, in turn, enhance interpersonal trust among the employees that will encourage them to share their knowledge with their colleagues.

Additionally, many companies have been empowering lower-level employees by providing them with more convenient and real-time access to critical data and information, and by offering more effective IT-enabled tools to help them search for and locate critical information. They could also generate customized reports that allow staff members to acquire information without the assistance of their superiors or colleagues. The provision of customized information that meets individual employee needs with regard to accomplishing particular tasks can thus make staff members feel more in control of their surroundings and more competent regarding participating in work-related decision-making processes. Consequently, managers should put effort into developing well-designed information systems that can provide employees with high-quality, real-time information, as a sign of trust in their employees, to minimize the perceived uncertainty and risks that may arise due to concerns about operational complexity and the trustworthiness of others. These efforts may eventually contribute to developing a high level of employee psychological empowerment and, in turn, may increase interpersonal trust among employees and their intentions to share knowledge with others.

Finally, employees' knowledge sharing intentions can be enhanced if the formation of conflicts, psychological empowerment and trust are effectively managed. Managers should implement strategies that facilitate the development and maintenance of the indicated psychological processes by facilitating productive task conflicts and reducing relationship conflicts to increase employees' psychological empowerment in terms of their feeling capable of and competent to participate in decision-making processes and to trust their colleagues. This process may increase the employees' sense of job security, their beliefs that they are valued by their superiors and also contribute to overall harmonious relations among colleagues, thus resulting in a greater propensity for them to share knowledge with one another. For example, because distrust in others may occur when there are intense relationship conflicts among employees in an organization, managers should put effort into establishing an organizational environment that facilitates harmonious relationships among employees via both formal and informal social activities, including study groups, intra-organizational communities of interest and scheduled conferences. To elaborate on this point, managers should include educational efforts and tools that can help employees develop the skills necessary to effectively resolve interpersonal conflicts in both formal and

informal social activities. Additionally, managers should provide employees with tangible and/or intangible rewards for inter-employee information sharing and mutually supportive behavior as well as for collaborative decision-making practices that are observed in both formal and informal social activities. This will enhance employees' perceptions of psychological empowerment, causing them to feel accepted by their colleagues, which will facilitate the development of high levels of interpersonal trust among employees. Organizations that equip their employees with effective conflict-handling skills tend to have fewer interpersonal relationship conflicts, more performance advantages in terms of more open and constructive discussions for generating productive task conflicts, higher levels of interpersonal trust and increased personal competence and autonomy, which, in turn, may lead to more collaboration and knowledge exchanges among employees.

6. Conclusion

This study was an attempt to advance the understanding of employees' knowledge sharing intentions in organizations from an integrated perspective of interpersonal conflicts, psychological empowerment and interpersonal trust based on the empowerment theory. To achieve this aim, a multi-view research model that integrates these key concepts was developed. The research results support the hypotheses based on the proposed model, with a few exceptions. Overall, the results provide managers with significant insights into effective methods for designing their management mechanisms and facilitating favorable interpersonal relationships to encourage interpersonal knowledge sharing.

This study has a number of limitations, as follows. The first limitation is related to the units of analysis related to the investigation of the constructs of interpersonal conflict and trust. This study investigates the effects of conflict and trust at the individual level. Future research may advance our understanding of the related issues by focusing on the influence of conflict and trust at the group level, and by determining how they may affect employees' knowledge sharing intentions in various organizational contexts.

The second limitation is related to the investigation of the bidirectional association between interpersonal trust and conflicts. This study focused on an examination of the effects of different types of conflicts on interpersonal trust. However, prior research indicates that there is a dynamic interplay between trust and conflict that cannot be formulated in any simple causal manner (Shrum *et al.*, 2001). Future researchers may wish to concentrate on investigating the bidirectional interactions between trust and conflicts in different knowledge-sharing contexts.

The third limitation is related to the examination of the bidirectional relationships between task and relationship conflicts. In this study, we validated the positive effect of task conflicts on relationship conflicts. However, some prior studies have implied that there is a positive effect of relationship conflicts on task conflicts because high levels of relationship conflicts may suppress the development of productive interaction patterns, including ways to resolve criticism and disagreement, and may thus lead to high levels of task conflicts (Jehn and Mannix, 2001). Future research that adopts a time-series research design using simulations and/or analysis of longitudinal data may specifically examine the bidirectional, feedback relationships between task and relationships conflicts and how such relationships influence individuals' knowledge sharing intentions in various social contexts.

The fourth limitation is that we overlooked the influences of interpersonal conflicts, psychological empowerment and trust on employees' actual knowledge sharing behavior. Although we specified the reasons for only investigating knowledge sharing intention in the previous section, we strongly encourage future researchers to revise or extend our research model by examining employees' actual knowledge sharing behavior. Finally, this study investigated the effects of the key constructs of interest on employees' knowledge sharing intentions. There have been studies that have demonstrated the merits of considering the

distinction between knowledge sharing and withholding behaviors (Lin and Huang, 2010) and the distinction between the sharing of explicit and implicit knowledge (Bock et al., 2005). Therefore, further research could be conducted that considers this distinction.

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Appendix 1

List of survey items by first-order constructs in the official questionnaire:

1. *Relationship conflict* (Jehn, 1995)
 - RC1: There is a lot of friction among members in my work unit.
 - RC2: There are a lot of personality conflicts in my work unit.
 - RC3: There is a lot of tension among members in my work unit.
 - RC4: There is a lot of emotional conflict among members in my work unit.
2. *Task conflict* (Jehn, 1995)
 - TC1: Members in my work unit often have disagreements regarding the work being done.
 - TC2: There are a lot of conflicts about ideas among members in my work unit. (discarded)
 - TC3: There is a lot of conflict about the work we do among members in my work unit.
 - TC4: There are a lot of differences of opinion among members in my work unit.
3. *Knowledge sharing self-efficacy (a first-order construct of psychological empowerment)* (Compeau and Higgins, 1995; Hsu et al., 2007)
 - KSSE1: I am confident in providing my experience, insights, or expertise as an example to my colleagues.
 - KSSE2: I am confident in providing my experience, insights, or expertise by engaging in dialogue with my colleagues.
 - KSSE3: I am confident in providing my ideas and perspectives to my colleagues through participating in discussions.
 - KSSE4: I am confident in articulating myself in written, verbal, or symbolic forms.
 - KSSE5: I am confident in authoring an article or posting a message to the community forum or discussion area.

- KSSE6: I am confident in responding to messages or articles posted by my colleagues.
 - KSSE7: I am confident in answering questions, giving advice or providing examples to questions or inquiries from my colleagues.
4. *Knowledge sharing self-determination (a first-order construct of psychological empowerment)* (Fuller *et al.*, 2009; Ugboro and Obeng, 2000)
 - KSSD1: I had the feeling of active participation in the knowledge sharing activities with others.
 - KSSD2: The knowledge sharing activities gave me the feeling that I am taken seriously.
 5. *Integrity* (Jarvenpaa *et al.*, 1998; Lu *et al.*, 2010)
 - INTE1: My colleagues display a solid work ethic.
 - INTE2: My colleagues try hard to be fair in dealing with one another. (discarded)
 - INTE3: I like the work values of my colleagues.
 - INTE4: My colleagues do not behave in a consistent manner. (reverse coded)
 - INTE5: My colleagues were strongly committed to the requests from others. (discarded)
 6. *Benevolence* (Jarvenpaa *et al.*, 1998; Lu *et al.*, 2010)
 - BENE1: My colleagues would not knowingly do anything to disrupt or slow down our works.
 - BENE2: My colleagues are concerned about what is important to others.
 - BENE3: My colleagues will do everything within their capacity to help others.
 7. *Ability* (Jarvenpaa *et al.*, 1998; Lu *et al.*, 2010)
 - ABI1: I am confident about the skills that my colleagues have in relation to the topics we discuss.
 - ABI2: My colleagues have much knowledge about the subject we discuss.
 - ABI3: My colleagues have specialized capabilities that can add to our conversations.
 - ABI4: My colleagues are well qualified in the topics we discuss.
 8. *Knowledge sharing intention* (Bock *et al.*, 2005)
 - KSI1 : I will share my work reports and official documents with my colleagues more frequently in the future.
 - KSI2 : I will always provide my manuals, methodologies and models for my colleagues.
 - KSI3 : I intend to share my experience or know-how from work with my colleagues more frequently in the future.
 - KSI4 : I will always provide my know-where or know-whom at the request of my colleagues.
 - KSI5 : I will try to share my expertise from my education or training with my colleagues in a more effective way.

Appendix 2

List of survey items by first-order constructs that were discarded based on the results of the pilot test

1. *Knowledge sharing self-determination* (Fuller *et al.*, 2009; Ugboro and Obeng, 2000)
 - KSSD-D1: I had the feeling that I can freely express my ideas in the knowledge sharing activities with others.

2. *Integrity* (Jarvenpaa et al., 1998; Lu et al., 2010)
 - INTE-D1: I never am doubtful about whether my colleagues will do what they promised.
3. *Benevolence* (Jarvenpaa et al., 1998)
 - BENE-D1: My colleagues are very concerned about their ability to get along with others.
 - BENE-D2: The outcome of my tasks are very important to my colleagues.
4. *Ability* (Jarvenpaa et al., 1998)
 - ABI-D1: My colleagues are very capable of performing their tasks.
 - ABI-D2: My colleagues seem to be successful in the activities they undertake.

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